

Appendix E2a.ii (2) – Restoration Plans and TMDLs (Restoration Inspections)

BARRY GLASSMAN
HARFORD COUNTY EXECUTIVE



JOSEPH J. SIEMEK, P.E.
DIRECTOR OF PUBLIC WORKS

Date: April 13, 2022

To: Carolyn Combs
Administrative Budget Technician

Thru: Steven A. Walsh PE
Deputy Director of Public Works

Christine M. Buckley, PE
MS4 Program Manager

From: Michele Dobson
MS4 Monitoring Coordinator

Subject: Purchase order request
Contract/Bid # 21-100 Open- End Landscaping
Project Name: Edwards Lane Reforestation

Staw 4/20/22
Date
CM Buckley
Digitally signed by CM Buckley
DN: cn=CM Buckley, email=cm.buckley@harfordcountymd.gov,
o=Harford County, ou=Public Works and Restoration, cn=CM Buckley
Date: 2022.04.20 12:22:36-0400

Michele Dobson
Digitally signed by Michele Dobson
DN: cn=Michele Dobson, email=michele.dobson@harfordcountymd.gov,
o=Harford County, ou=Public Works and Restoration, cn=Michele Dobson
Reason: I have reviewed this document
Date: 2022.04.13 09:54:37-0400
Date

Please issue a purchase order for the following:

PO Amount	\$87,515.67
Funding Account	A164108 Watershed Restoration Assessment
Project End Date (required for Operating Accts. Only)	NA A164107 Watershed Restoration Improvements
Vendor	EQR
Contract/Bid # (with letter for design projects)	21-100D
Description of work	Edwards Lane Tree Planting was originally planted between 2013-2015 under the Stream Restoration Challenge Grant. In 2020, the planting was inspected and failed to meet MDE's tree planting BMP criteria. This PO request is for the implementation and maintenance of the reforestation plan developed to remain in compliance. The plan and costs are attached.
Board of Estimates (BOE) approval date if applicable	NA

Cc: K. Szymanowski; V. Yingling; S. Whalon

MARYLAND'S NEW CENTER OF OPPORTUNITY

410.638.3285 | 410.879.2000 | TTY Maryland Relay 711 | www.harfordcountymd.gov

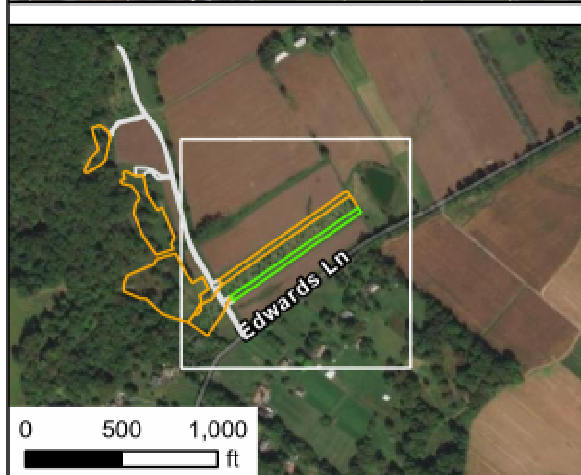
212 S. Bond Street, Bel Air, Maryland 21014

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST

EQR PROPOSAL _HACL - Edwards Lane Reforestation v.2.1

Item #	DESCRIPTION	App. Quant.	UNITS	UNIT PRICE	TOTAL
1	Contract Manager	16	HR	\$69.14	\$1,106.24
4	Field Supervisor	24	HR	\$66.26	\$1,590.24
7	Skilled Field Technician	104	HR	\$43.21	\$4,493.84
7	Skilled Field Technician (Licenced HerbicideApplicator)	120	HR	\$43.21	\$5,185.20
10	Unskilled Field Laborer	488	HR	\$43.21	\$21,086.48
47	Materials Non-Plant	\$ 7,892.42	Mult.	1.20	\$9,470.90
50	Materials - Tree	\$ 21,223.67	Mult.	1.55	\$32,896.69
25	Water Truck	80	HR	\$86.16	\$6,892.80
27	Mower/Bush Hog	96	HR	\$ 49.93	\$4,793.28
				TOTAL	\$87,515.67

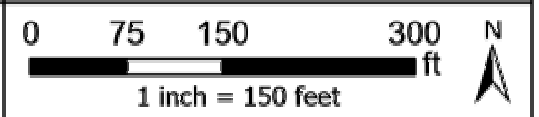
NOTES: Price includes two years of warrenty, 3 years of maintence after installation, plastic tree shelter with stake, and mulch, maintence includes mowing per this proposal.



- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
 Plant trees in 2 rows, 15' O.C., leaving walking path down center of planting area. Treat invasive species in planting pits of established trees in CIP0060.

Edwards Lane
Site ID: CIP0081
 2360 Edwards Lane Bel Air, MD 21015

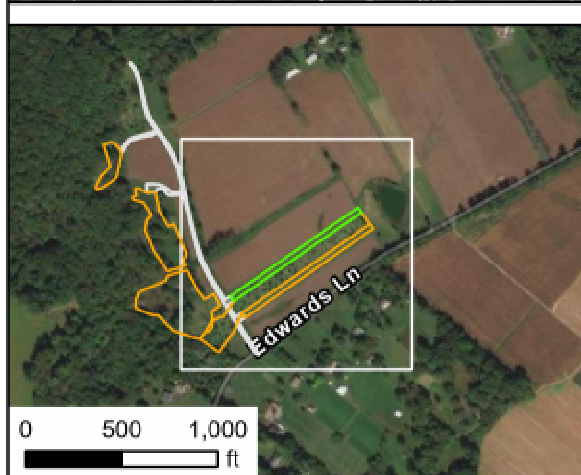
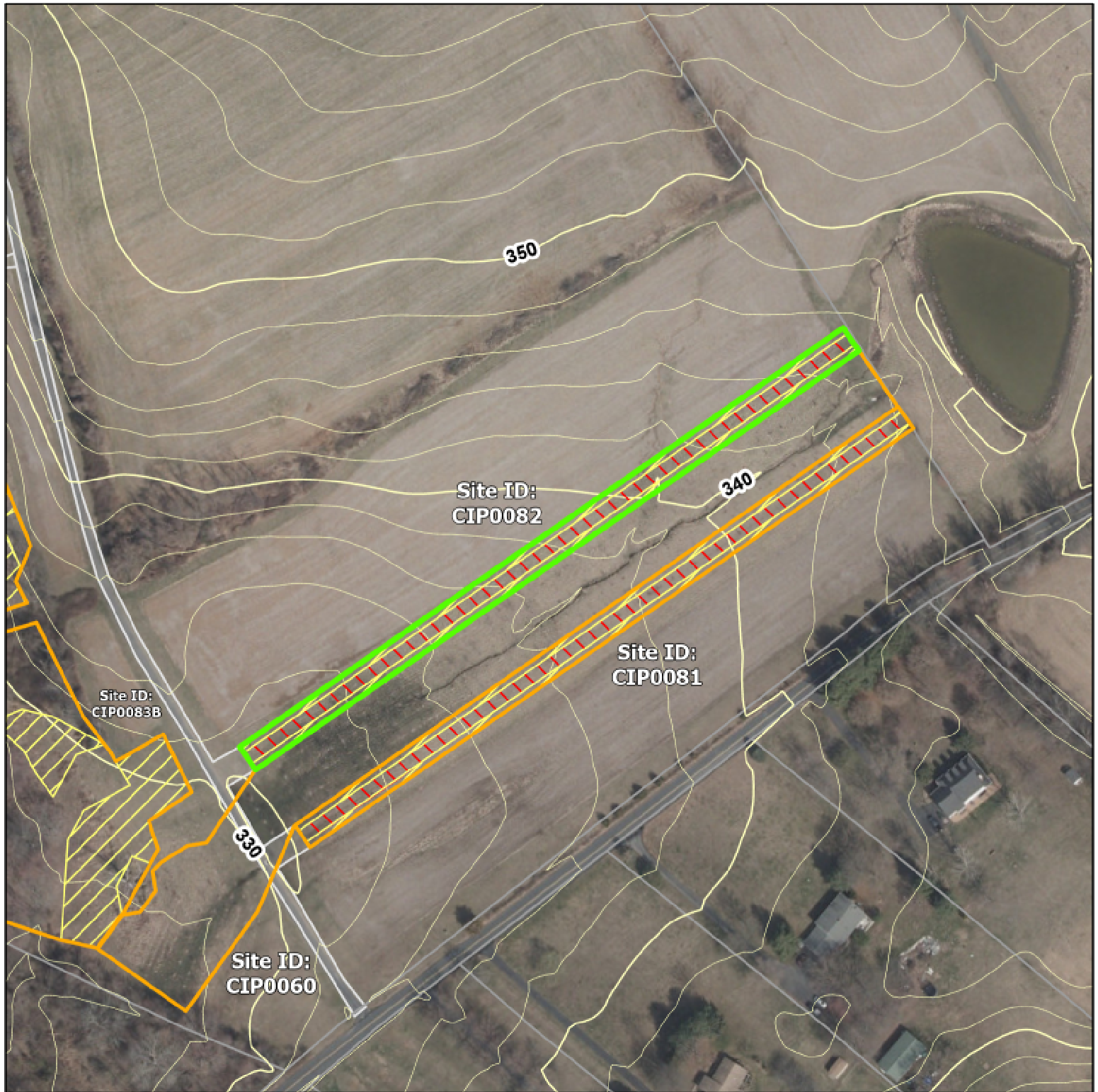


February 2022

RK&K
 Responsive People | Creative Solutions



EDWARDS LANE - PLANTING SCHEDULE - MESIC PLANTING							
CIP0081							
Acreage	0.55	Current Trees/Acre		4	Proposed Trees/Acre		200
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
16	Betula nigra	River birch	FACW	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
16	Carpinus caroliniana	American hornbeam	FAC	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
22	Nyssa sylvatica	Blackgum	FAC	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
22	Platanus occidentalis	American sycamore	FACW	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
16	Populus deltoides	Eastern cottonwood	FAC	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
16	Quercus phellos	Willow oak	FAC	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
108	=total						
<div>Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.</div>							



- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
 Plant trees in 2 rows, 15' O.C., leaving walking path down center of planting area. Treat invasive species in planting pits of established trees in CIP0060.

Edwards Lane
Site ID: CIP0082
 2360 Edwards Lane Bel Air, MD 21015

0 75 150 300
ft

1 inch = 150 feet

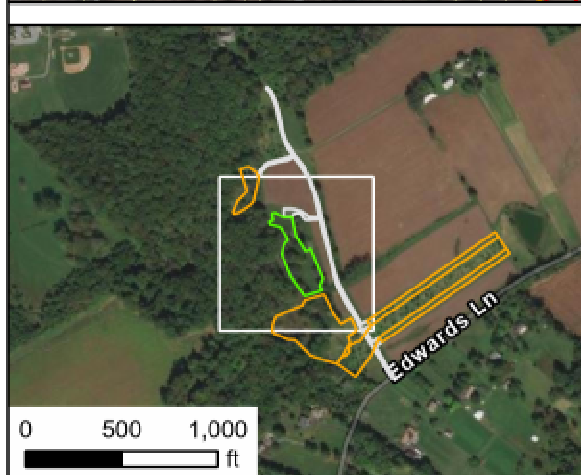
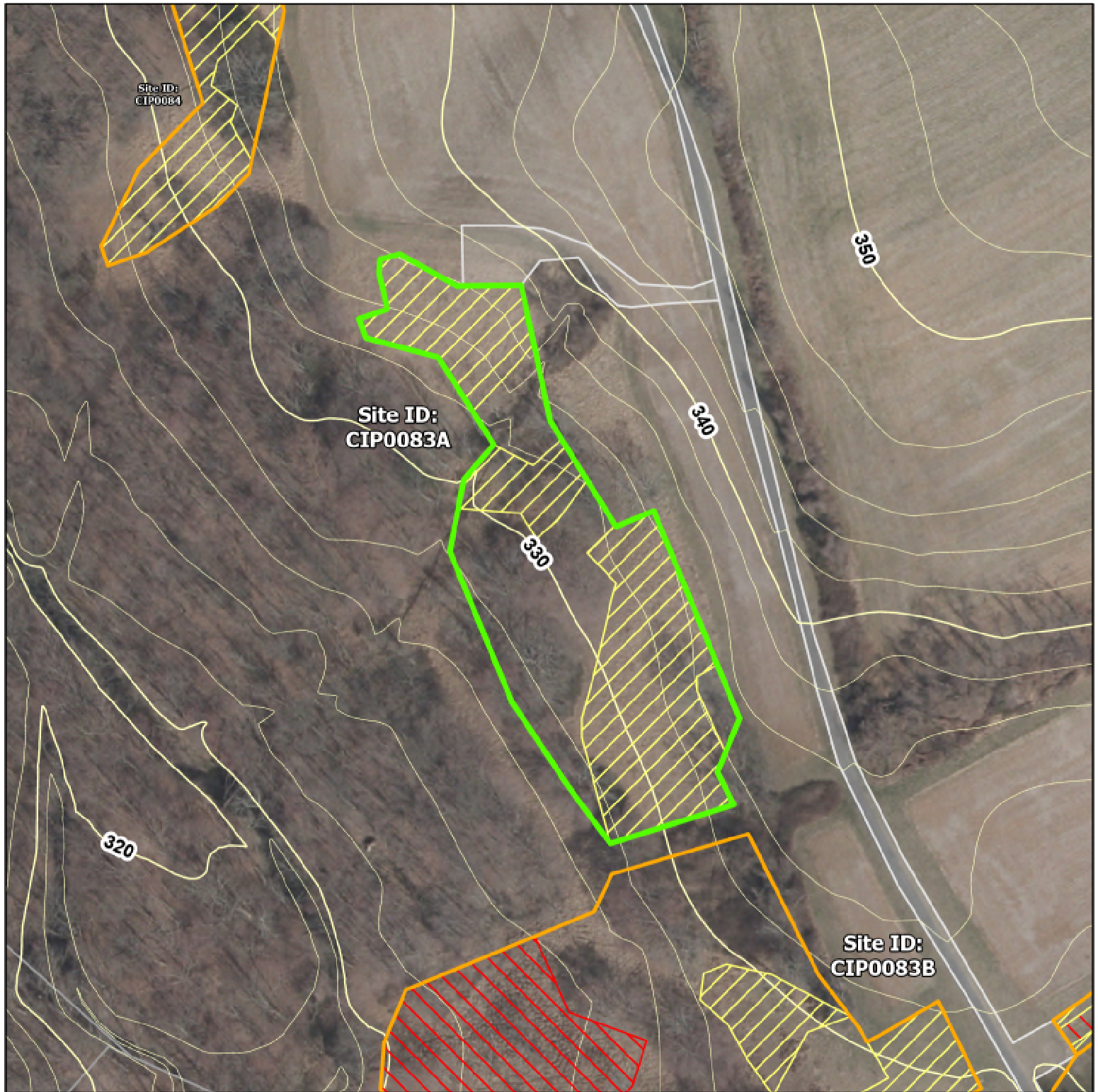
N

February 2022

Responsive People | Creative Solutions

EDWARDS LANE - PLANTING SCHEDULE - MESIC PLANTING							
CIP0082							
Acreage	0.57	Current Trees/Acre		16	Proposed Trees/Acre		200
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
16	Betula nigra	River birch	FACW	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
16	Carpinus caroliniana	American hornbeam	FAC	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
22	Nyssa sylvatica	Blackgum	FAC	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
22	Platanus occidentalis	American sycamore	FACW	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
16	Populus deltoides	Eastern cottonwood	FAC	5' height	#5 Container	Single stem	Single row on each side, 15' O.C.
16	Quercus phellos	Willow oak	FAC	1" caliper	#7 Container	Single stem	Single row on each side, 15' O.C.
108	=total						
Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.							

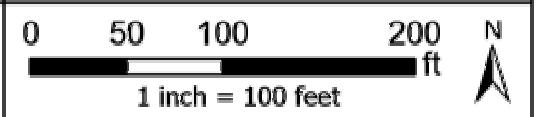
Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.



- | | |
|---------------|-------------------|
| Site Boundary | Contours (2ft) |
| Adjacent Site | Access Route |
| Infill Area | Property Boundary |
| Do Not Plant | |

Planting Notes:
Infill plants as indicated on plans and as spacing allows between existing trees.

Edwards Lane
Site ID: CIP0083A
2360 Edwards Lane Bel Air, MD 21015



February 2022

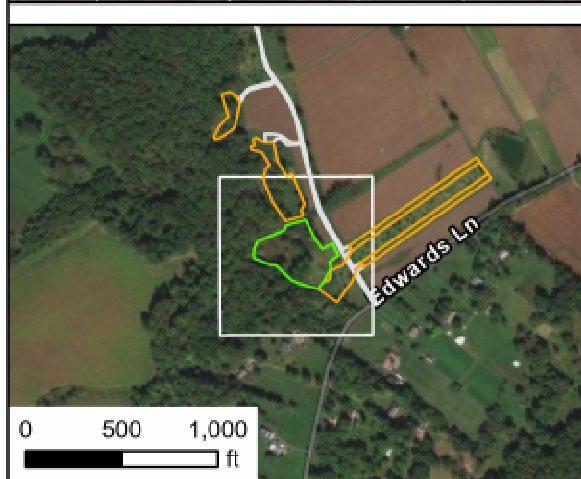
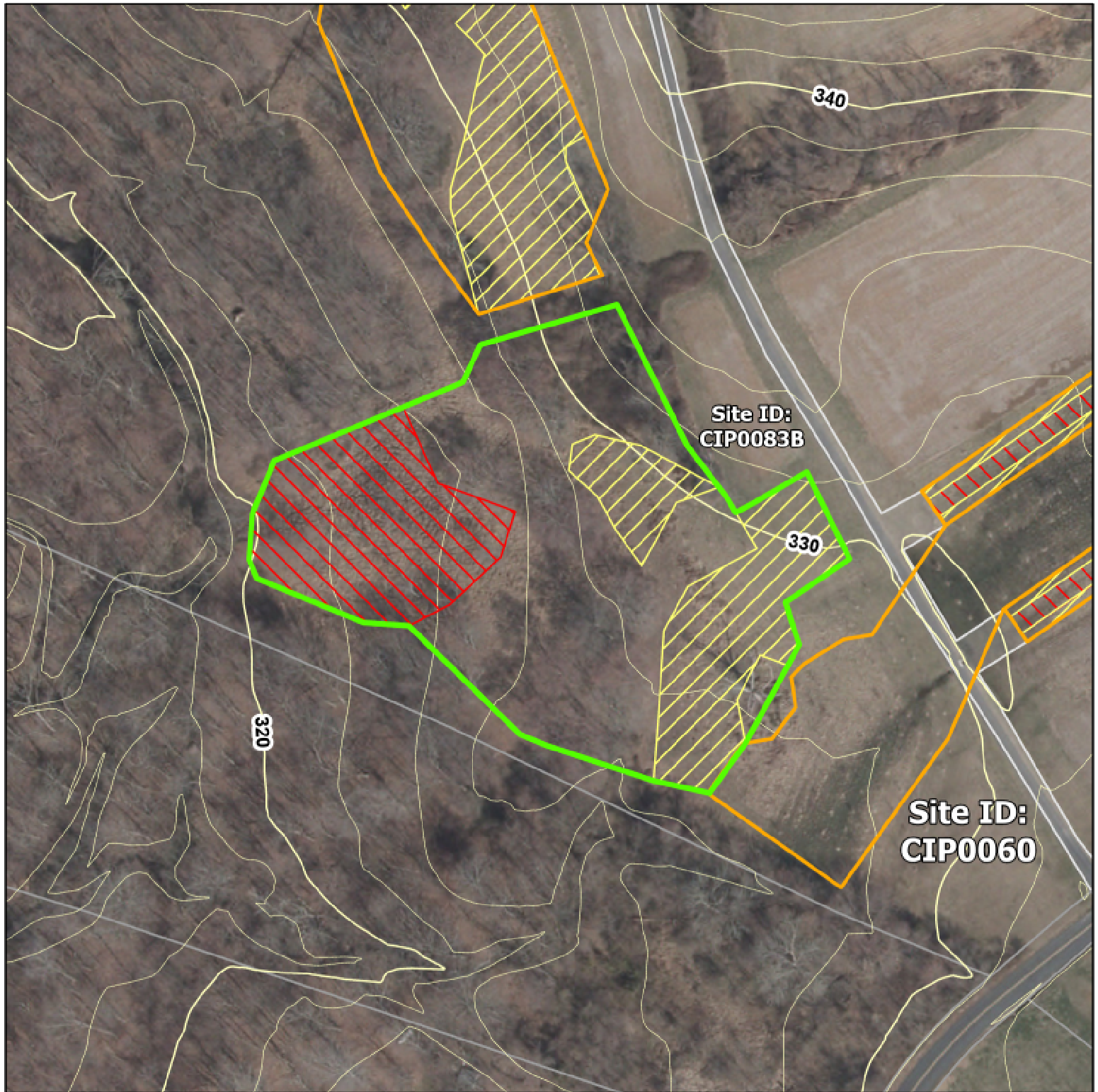
RK&K
Responsive People | Creative Solutions



EDWARDS LANE - PLANTING SCHEDULE - UPLAND PLANTING

CIP0083A							
Acreage	1.11	Current Trees/Acre		27	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
20	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#5 Container	Single stem	Infill as indicated at approx 15' O.C
20	<i>Celtis occidentalis</i>	Common hackberry	FACU	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
27	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#5 Container	Single stem	Infill as indicated at approx 15' O.C
27	<i>Quercus alba</i>	White oak	FACU	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
20	<i>Quercus falcata</i>	Southern red oak	FACU	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
20	<i>Quercus rubra</i>	Northern red oak	FACU	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
134	=total						

Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.



- ▬ Site Boundary
- ▬ Adjacent Site
- ▨ Infill Area
- ▨ Do Not Plant
- ▬ Contours (2ft)
- ▬ Access Route
- ▬ Property Boundary

Planting Notes:
Infill plants as indicated on plans and as spacing allows between existing trees.

Edwards Lane

Site ID: CIP0083B

2360 Edwards Lane Bel Air, MD 21015

0 50 100 200

ft

1 inch = 100 feet

N

February 2022

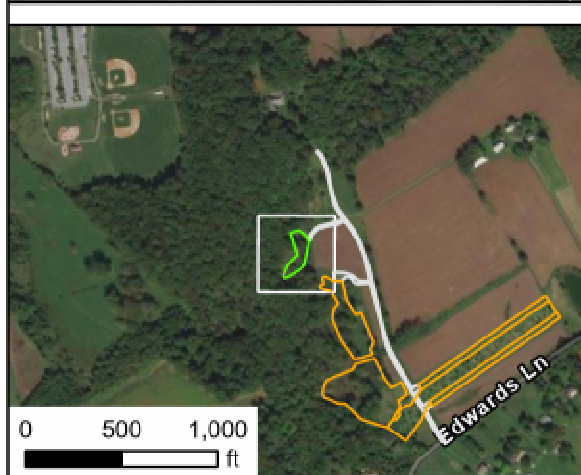
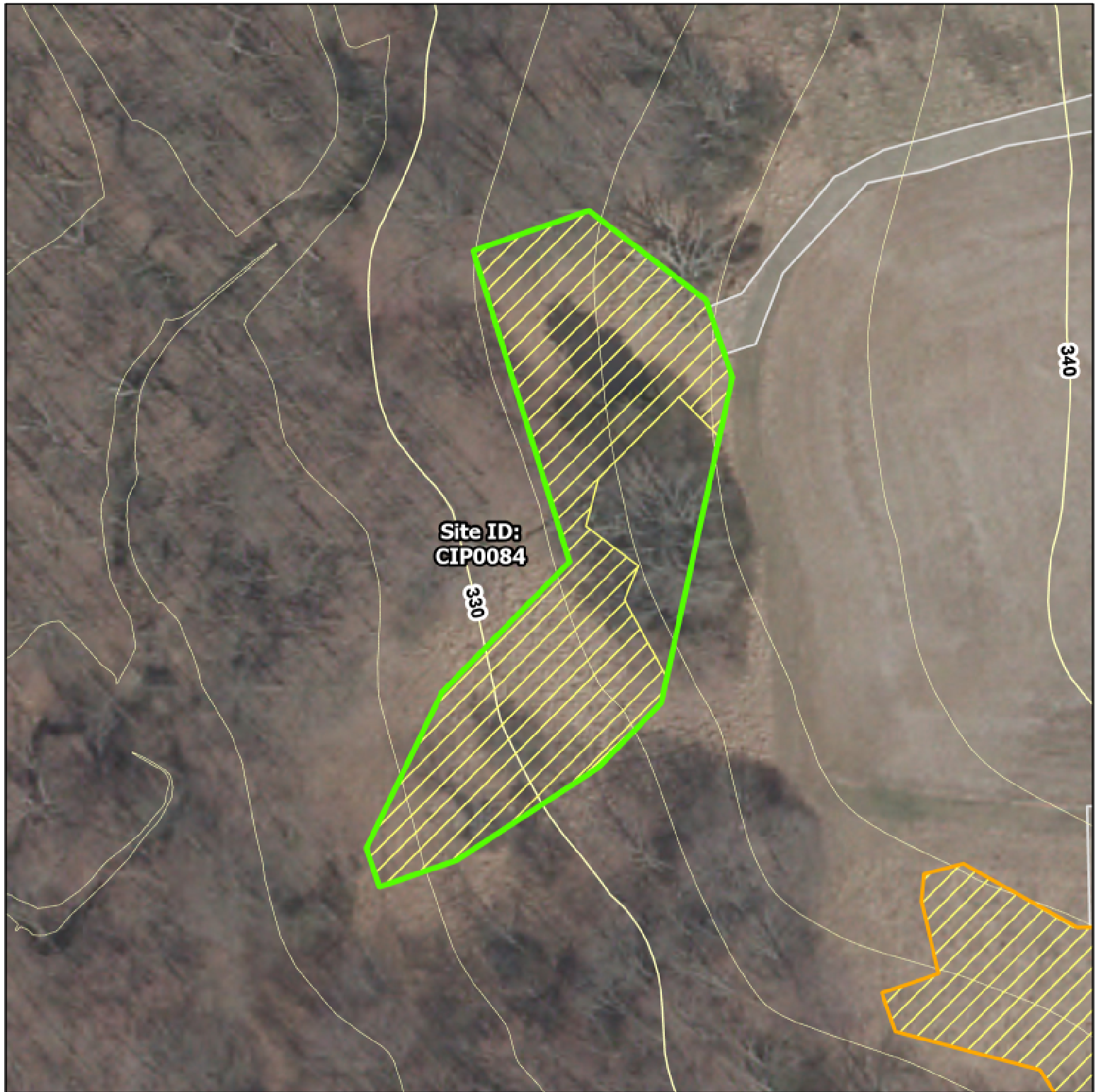
Responsive People | Creative Solutions

EDWARDS LANE - PLANTING SCHEDULE - LOWLAND PLANTING

CIP0083B

Acreage	2.00	Current Trees/Acre		87	Proposed Trees/Acre		140
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
16	<i>Acer saccharinum</i>	Silver maple	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 15' O.C
16	<i>Betula nigra</i>	River birch	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 15' O.C
21	<i>Magnolia virginiana</i>	Sweetbay	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 15' O.C
16	<i>Platanus occidentalis</i>	American sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
21	<i>Quercus bicolor</i>	Swamp white oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
16	<i>Quercus palustris</i>	Pin oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 15' O.C
106	=total						

Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.



- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
Infill plants as indicated on plans and as spacing allows between existing trees.

Edwards Lane
Site ID: CIP0084
2360 Edwards Lane Bel Air, MD 21015

0 25 50 100
ft

1 inch = 50 feet

N

February 2022

EDWARDS LANE - PLANTING SCHEDULE - LOWLAND PLANTING							
CIP0084							
Acreage	0.30	Current Trees/Acre		11	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
6	Acer saccharinum	Silver maple	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
6	Betula nigra	River birch	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
8	Magnolia virginiana	Sweetbay	FACW	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
8	Platanus occidentalis	American sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
6	Quercus bicolor	Swamp white oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
6	Quercus palustris	Pin oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
40	=total						
<div>Deer Protection: All trees shall receive biodegradable vented tubes or mesh shelters with minimum dimensions of 4' tall, and 4" in diameter, secured with 3 zip ties to a 1" x 1" x 6' white oak stake driven at least 2' into the ground.</div>							

dobson, michele

From: Rich Lefebure <rlefebure@rkk.com>
Sent: Friday, July 29, 2022 10:22 AM
To: dobson, michele
Cc: Gordon, Kate
Subject: Summary of Edwards Lane Post Maintenance Inspection on 7/25/22

[EXTERNAL SENDER]

Hi Michele,

Please find a summary of the results of the Edwards Lane post maintenance inspection completed on Monday, 7/25. Please let us know if you have any questions or would like any additional detail.

Observations:

- The plantings look good overall. All new plantings have been staked, but the stakes were installed at a noticeable angle. I'm not sure if this is supposed to provide additional support against the prevailing winds, but it may make mowing more difficult. The stakes appear secure so I don't think any adjustments are required unless the Ludwigs request it.
- All trees received black rigid plastic shelters except for the magnolias, which received metal cages. The invoice included 496 "48IN Tree Shelters", so we'll need to keep an eye out if EQR provides another invoice for the 29 metal cages on the magnolias and adjust as needed.
- The oaks that suffered from heat and drought stress during planting appear to have bounced back and didn't show any notable signs of stress.
- The river birch appear to be very dry and desiccated and many of the redbud have curled/wilting leaves.
- A small population of spotted lanternflies was observed on site, but in lower numbers than at Patterson Mill. I don't think control is warranted and the Ludwigs have crops on site so they're likely already well aware of the SLF presence.
- Deer browse was pretty minimal at the site.
- It doesn't appear any maintenance has been completed on the older plantings as the Ludwigs have requested. Both the older sites and older planting pits within the infill sites could use maintenance.

Recommendations:

- Water the trees at least every two weeks through early September to help them through the remainder of the summer, as needed based on weather conditions.
- Conduct maintenance to control invasive species in older tree planting pits.
 - Recommend using hand tools to clear the planting pits, with herbicides only being used via cut stump application. Herbicides used in wet areas should be aquatic herbicides.
- Provide selective control of invasive species, namely multiflora rose, across the older sites.

Thanks!

Rich

"RK&K" and "RK&K Engineers" are registered trade names of Rummel, Klepper & Kahl, LLP, a Maryland limited liability partnership. This message contains confidential information intended only for the person or persons named above. If you have received this message in error, please immediately notify the sender by return email and delete the message. Thank you.

BARRY GLASSMAN
HARFORD COUNTY EXECUTIVE



JOSEPH J. SIEMEK, P.E.
DIRECTOR OF PUBLIC WORKS

Date: November 10, 2021

To: Carolyn Combs
Administrative Budget Technician

Thru: Steven A. Walsh PE
Deputy Director of Public Works

Christine M. Buckley, PE
MS4 Program Manager

From: Michele Dobson
MS4 Monitoring Coordinator

Subject: Purchase order request
Contract/Bid # 17-064 Open- End Landscaping
Project Name: Harford Christian School Tree Planting

 11/10/21

CM Buckley

Date

Michele Dobson

Date

Date

Please issue a purchase order for the following:

PO Amount	\$6,800.98
Funding Account	A164108 Watershed Restoration Maintenance
Vendor	Environmental Quality Resources, LLC
Contract/Bid # (with letter for design projects)	17-064HHH Open-End Landscaping
Description of work	This scope of work includes the re-planting of trees at Harford Christian School. This site was identified during the triennial inspection requirement of the County's MS4 permit.
Board of Estimates (BOE) approval date if applicable	NA

If you have any questions, please contact me at extension 1247.

Cc: K. Szymanowski; V. Yingling; C. Carpenter

MARYLAND'S NEW CENTER OF OPPORTUNITY

410.638.3285 | 410.879.2000 | TTY Maryland Relay 711 | www.harfordcountymd.gov

212 S. Bond Street, Bel Air, Maryland 21014

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST

Environmental Quality Resources, LLC

1 Church View Road

Millersville, MD 21108

(410) 923-8680 Fax (410) 923-8683

To:	Harford County	Contact:	Kate Gordon
Address:	Department Of Public Works, 212 South Bond Street Belair, MD 21014	Phone:	(410) 638-3000
Project Name:	Harford Christian School	Fax:	(410) 879-2000
Project Location:	1736 Whiteford Rd, Darlington, MD	Bid Number:	
		Bid Date:	

Environmental Quality Resources, LLC proposes to provide the following environmental services:

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
100	Tree Cages - Existing Trees	112.00	EACH	\$18.55	\$2,077.60
200	Tree Planting - New Trees & Cages	54.00	EACH	\$87.47	\$4,723.38

Total Bid Price: \$6,800.98

Notes:

- EQR proposes to provide all labor, materials, and equipment necessary to complete the work outlined in email correspondence and attachment from Kate Gordon on Tuesday October 26th, 2021.
- EQR's proposed scope of work includes the following items outlined below:
 - Species provided will be Box Elder, Shadbush Serviceberry, Common Hackberry, Red Bud, Sweetbay Magnolia, Black Gum, Eastern Cottonwood, Swamp White Oak, Willow Oak, and Bald Cypress, this may be modified depending on seasonal availability at the time of installation.
 - Planting layout flagged prior to installation
 - Cage quantity for existing trees can be adjusted based on existing field conditions at time of installation
 - EQR will provide a one time one year replacement warranty
- The following items are not included in EQR's scope of work:
 - More than one mobilization to the site
 - Permit fees or preparation
 - Wage Rates / Certified Payroll
 - MBE or other MFD participation percentages
 - All work not explicitly stated in the Line Items
- This proposal will remain in effect for 60 days from the date of issue.

Payment Terms:

Items of work will be invoiced based on percent complete. Payment will be expected within 30 days upon date of invoice. A monthly interest charge of 1.5% will be billed on all unpaid accounts (18%APR).

ACCEPTED:

The above prices, specifications and conditions are satisfactory and are hereby accepted.

Buyer: _____

Signature: _____

Date of Acceptance: _____

CONFIRMED:

Environmental Quality Resources, LLC

Authorized Signature: _____

Estimator: Calder Woolums
(240) 495-5543 cwoolums@eqrllc.com

Proposed Plant List				
Quantity	Common Name	Scientific Name	Min. Container	Min. Height
5	Box Elder	Acer negundo	#5	5' tall
6	Shadbush serviceberry	Amelanchier canadensis	#5	5' tall
5	Common Hackberry	Celtis occidentalis	#5	5' tall
7	Red bud	Cercis canadensis	#5	5' tall
6	Sweetbay magnolia	Magnolia virginiana	#5	5' tall
5	Black gum	Nyssa sylvatica	#5	5' tall
5	Eastern cottonwood	Populus deltoides	#5	5' tall
5	Swamp white oak	Quercus bicolor	#5	5' tall
5	Willow oak	Quercus phellos	#5	5' tall
5	Bald cypress	Taxodium distichum	#5	5' tall
54	TOTAL PLANTS			



MD iMAP, DoIT

Legend

Original Planting Area

Current Stream Challenge Grant Site Boundaries

Proposed Tree Planting

Parcel Boundary

Effective FEMA Floodplain

100 Year Floodplain (1% Chance)

500 Year Floodplain (0.2% Chance)

Floodway (1% Chance)

Upland (Zone X)

N

0

40

80

160

US Feet

1 inch = 80 feet

Harford County Stream Challenge Grant Tree Plantings

Harford Christian School

October 2021

dobson, michele

From: dobson, michele <mgdobson@harfordcountymd.gov>
Sent: Thursday, December 22, 2022 9:51 AM
To: dobson, michele
Subject: Harford Christian Inspection - install
Attachments: DSCN7582.JPG; DSCN7574.JPG; DSCN7579.JPG; Vandalism.jpg

Hi Michele,

Here were my notes from the installation inspection:

- The inspection and planting occurred on 12/21/21. Most of the plant material was healthy and matched contract specifications, but three of the willow oaks were dead and one redbud was missing. Aside from those four plants, everything else was planted and mulched on 12/21/21.
 - Willie brought and planted the three replacement willow oaks and the missing redbud the following day, 12/22/21.
 - The morning of 12/22/21, Willie also wrote us stating that a vandal had driven across the site and destroyed one of the planted redbuds (see attached photo).
 - We responded and said they would not be responsible for the replacement.
- All of the plants were installed and mulched on 12/21/21 and the last of the shelters were completed 12/22/22. Sheltering included the 54 new trees and 77 existing trees, for a total of 131 shelters.
 - Shelters were ~18" diameter welded wire cages secured to a single 1"x1"x6' white oak stake.

Rich

BARRY GLASSMAN
HARFORD COUNTY EXECUTIVE



JOSEPH J. SIEMEK, P.E.
DIRECTOR OF PUBLIC WORKS

Date: May 2, 2022
To: Carolyn Combs
Administrative Budget Technician
Thru: Steven A. Walsh PE
Deputy Director of Public Works

Christine M. Buckley, PE
MS4 Program Manager

From: Michele Dobson
MS4 Monitoring Coordinator

Subject: Purchase order request
Contract/Bid # 21-100E Open- End Landscaping
Project Name: Patterson Mill Tree Planting Implementation and Maintenance


CM Buckley Date


Michele Dobson Date

Please issue a purchase order for the following:

PO Amount	\$244,336.30
Funding Account	A164105 County Owned Properties
Project End Date (required for Operating Accts. Only)	NA
Vendor	Four Season Landscaping
Contract/Bid # (with letter for design projects)	21-100E
Description of work	Patterson Mill Tree Planting was originally planted between 2013-2015 under the Stream Restoration Challenge Grant. In 2020, the planting was inspected and failed to meet MDE's tree planting BMP criteria. This PO request is for the implementation and maintenance of the reforestation plan developed to remain in compliance. The plan and costs are attached.
Board of Estimates (BOE) approval date if applicable	NA

Cc: K. Szymanowski; V. Yingling; S. Whalon

MARYLAND'S NEW CENTER OF OPPORTUNITY

410.638.3285 | 410.879.2000 | TTY Maryland Relay 711 | www.harfordcountymd.gov

212 S. Bond Street, Bel Air, Maryland 21014

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST



Patterson Mill HS- Reforestation Tree Planting Proposal

Total Estimate #1 and #2: \$244,336.30

**HARFORD COUNTY DEPT OF PUBLIC WORKS
212 S. BOND STREET
BEL AIR, MARYLAND 21014**

Sales: Christopher R. Coleman, CBLP, MS4-SCP, QCSI

Patterson Mill HS- Reforestation Tree Planting

85 Patterson Mill Road Bel Air, Maryland 21015

Estimate #1 of 2 Total: \$52,461.44

Est ID: EST3025824 2

Date: Apr-19-2022

Email: cmbuckley@harfordcountymd.gov

Phone: 410.638.3545 x1176

Christine, Michele, and Kate, Thank you for the opportunity to quote your project. Below is your breakdown. Please sign and return the proposal with P.O. and materials payment to receive a tentative start date. Thank you, Chris

Reforestation Planting- Labor

\$28,362.50

Provide and install trees to reforestation area as specified in design plans. Trees are as close to specified size requested. Availability dependent for installation. Note: Installation instructions edited by Harford County representatives. Due to changes in installation specifications, this contract is contingent upon execution and approval of maintenance contract, and any trees not meeting survivability rate in On-Call contract will be replaced at no cost for materials.

- Tree locations to fill in open gaps in the area will be marked with flags and paint.
- Exact tree planting locations will be string trimmed before installation.
- Approximately 1-2 foot deep x 1- 2 foot diameter holes will be dug.
- Fertilizer will be added to each planting.
- Trees will be planted at grade
- Finish with 2 foot diameter shredded mulch ring 2-3 inches deep.
- Install 1 tree protection mesh, 1 stake, and tree securement rope to each tree.
- Spread all excess planting soil around site. Remove all other non-organic debris associated with planting.
- Apply 5 gallons of water to each newly planted tree.

30 Hours	HC- Contract Manager- \$75.00/MH	\$2250.00
25 Hours	HC- Field Supervisor - \$65.00/MH	\$1625.00
150 Hours	HC- Skilled Field Technician - \$55.00/MH	\$8250.00
300 Hours	HC- Unskilled Field Technician - \$50.00/MH	\$15000.00

Reforestation Planting- Equipment & Materials**\$24,098.94**

Equipment and materials required to perform the reforestation tree planting.

30 Each	Platanus occidentalis- American Sycamore - #7 Container - x 1.2 multiplier	\$3747.90
30 Each	Quercus palustris- Pin Oak - #5 Container - 3/4" cal. - x 1.2 multiplier	\$3175.20
30 Each	Quercus phellos- Willow Oak - #3 Container- 3/4" cal. - x 1.2 multiplier	\$1436.40
30 Each	Populus deltoides- Eastern Cottonwood - #5 Container	\$3213.00
30 Each	Carpinus caroliniana- American Hornbeam - #5 Container	\$2835.00
30 Each	Cercis canadensis- Eastern Redbud - #5 Container - x 1.2 multiplier	\$2494.80
30 Each	Amelanchier canadensis- Serviceberry - #5 Container - x 1.2 multiplier	\$2494.80
13 Yard	Mulch - Double Shredded Hardwood - x 1.2 multiplier	\$628.55
11 25lb bag	Fertilizer- Healthy Start Fertilizer with Mycorrhizal Fungi - x 1.2 multiplier	\$959.53
210 Each	Heavy Duty Tree Stake - x 1.2 multiplier	\$1845.90
42 per 5	Rigid Plastic Mesh Tree Guards - 4 in. diameter, 48 in. height - x 1.2 multiplier	\$1044.12
3 100/Bag	14" Cable/Wire tie x 1.2 multiplier	\$48.99
3 Each	Tree Tie- 250' Roll - x 1.2 multiplier	\$111.75
1050 Gallon	Water- Provided to Customer	\$63.00

Subtotal \$52,461.44**Taxes \$0.00****Estimate Total****\$52,461.44****Contract Payment Summary****PO #****Contract #**



Patterson Mill HS Reforestation Maintenance Proposal

HARFORD COUNTY DEPT OF PUBLIC WORKS
212 S. BOND STREET
BEL AIR, MARYLAND 21014

Sales: Christopher R. Coleman, CBLP, MS4-SCP, QCSI
Reforestation Maintenance of Plantings- Patterson Mill HS
85 Patterson Mill Road Bel Air, Maryland 21015

Estimate #2 of 2 Total: \$191, 874.86

Est ID: EST1687207

Date: Apr-28-2022

Email: cmbuckley@harfordcountymd.gov

Phone: 410.638.3545 x1176

Christine, Michele, and Kate, Thank you for the opportunity to quote your project. Below is your breakdown. Please sign and return the proposal with P.O. Thank you, Chris

Contract Term: Our contract shall start on June 1, 2022, and continue until December 31, 2025. Contract includes 7 month period for first year, and 10 month periods for each of the following three years, from March through December for monthly tree maintenance. Maintenance of existing trees to be completed 5 times for each contract year. Mowing of low mow areas to be completed twice per year for each contract year. Spring mulching to be completed for each contract year, starting in 2023, and shall be completed in March. All visit counts and seasonal totals listed below show total for entire contract period.

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
Tree Maintenance- Newly Planted- Monthly	37	Per Visit	\$2,500.00	\$92,499.91	<input type="checkbox"/>

Reforestation Low Mow Areas Only: Maintenance of new plantings. 7 visits in 2022 and 10 visits per additional calendar year through 2025.

MAINTENANCE OF PLANTINGS:

DESCRIPTION: This effort shall include maintenance of all newly planted trees and shrubs as described below.

MAINTENANCE OPERATIONS:

Maintenance of Plantings: Maintenance of planted stock begins after installation is complete. The contractor shall provide care for the plantings, as specified below.

1. Period of Maintenance: Trees, shrubs, and deer protection shall be maintained for 36 months/ 3 calendar

Four Seasons Landscape & Construction
Services, Inc
1200-C Agora Drive, Ste 131
Bel Air, Maryland
21014

P.443.390.9273

www.fourseasonslandscapemd.com

chris@fourseasonslandscapemd.com

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
<p>years after installation.</p> <ol style="list-style-type: none"> Notification: The Contractor shall provide Harford County a minimum 72 hour notice before accessing the site. Plant Watering: The contractor shall ensure that soil moisture and water needs of plants are monitored, and water is applied as needed to maintain adequate growing conditions. The frequency and duration of watering shall be dictated by the nature of the on-site soils and the amount of rainfall. <ol style="list-style-type: none"> Watering equipment shall consist of sprinklers or hoses equipped with water breaker nozzles, so the water is applied with care to prevent damage to plants and minimize disturbance to soil and/or shredded hardwood bark mulch. Pest Management: Weeds, insects, and other pests should be monitored and controlled as needed to promote adequate growing conditions. If requested by Harford County, or in the event that weeds, insects, or pests pose a significant threat to the success of the plantings, an Integrated Pest Management (IPM) Program shall be developed. The IPM program shall be provided to the County for review and approval. <ol style="list-style-type: none"> Pesticides shall be applied in conformance with the Maryland Pesticide Applicator's Law, OSHA and MOSH regulations, and the manufacturer's label and Safety Data Sheets (SDS). Pesticides shall be applied by a Maryland Certified Pesticide Applicator, or by a Registered Pesticide Applicator under the supervision of a Certified Pesticide Applicator. When applying pesticides, ensure there is no damage to the plantings or non-target vegetation. Location and details of pesticide applications must be documented on the Pesticide Application Reporting Form. The contractor must submit the form to the proper agency(s) within 24 hours and maintain all records of application and copy the County on the submittal. In preparation for inspection, weeds shall be controlled within the planting pits and dead weeds taller than 6 in should be removed. Deer Protection: Deer protection should be replaced when damaged, missing, knocked over, or found to be interfering with plant growth. Warranty and Maintenance Inspections: <ol style="list-style-type: none"> All plant materials furnished and installed under this Contract shall be guaranteed for a period of one (1) year from the date of acceptance of the work by Harford County. The Contractor shall include the cost of maintenance in the cost proposal. Survivability shall be 85% for trees and shrubs. The Contractor shall provide plantings maintenance (weeding and watering) as needed to achieve this survival rate. Herbicide, fungicide, and fertilizer applications may be allowed for plantings maintenance if prior approval is received from Harford County. In addition, leaf litter mulch can be used for suppression of invasive plants for reforestation project. After any planting is completed a program of watering shall be instituted that is sufficient to support proper plant growth and insure survivability. The frequency and duration of watering shall be dictated by the nature of the on-site soils and the amount of rainfall. Biannual Inspections: Harford County (or a representative of the County) will inspect the planting site every six months after installation, monitoring whether the actions in Table 2 have been completed. One-Year Warranty Inspection: The One-Year Warranty Inspection shall be conducted a year after the installation date and include an assessment of unacceptable plants, per the criteria listed in Table 3, that require replacement per the one-year warranty required by the contract. Replanting will be required if fewer than 85% of the trees and shrubs are considered acceptable during the one-year warranty inspection. Replacement Plants: Replacement plants shall be true to species, cultivar, size, and quality as specified in the purchase order unless a modification request is approved. Replacement plants shall be installed as soon as feasible during the current Planting Season (as defined below). If identified between Planting Seasons, replacement plants shall be installed during the next Planting Season, as defined below. A modification request shall be promptly submitted when it is not possible to obtain plants that meet specifications. The Contractor shall not be paid for time or 					

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
----------------	--------	--------------	-------------	--------------	-----

materials associated with installing replacement plants as required by the contract terms and covered under the one-year warranty.

- i. Spring Planting Season. February 1 through June 30. Do not install plants in July.
- ii. Fall Planting Season. August 1 through December 31. Do not install plants in January.
- iii. TABLE 2 – INSPECTION REQUIREMENTS
 1. Watering has been performed as needed and/or requested.
 2. Trees are straightened.
 3. Deer protection is repaired or replaced.
 4. Washouts in planting pits are repaired.
 5. Plants are successfully established.
 6. Damaging pests are controlled.
 7. Planting pits are weed and pest free.
 8. Pesticide Application Forms are completed.
 9. Punch List items are completed.
- iv. TABLE 3- CRITERIA FOR UNACCEPTABLE PLANTS
 1. Tree, Shrub- Dead or Missing: Any dead or missing plant, any cause.
 2. Tree, Shrub- Defoliation: More than 25% of leaf area dead, lost or dropped.
 3. Tree, Shrub- Bark Wound: More than 15% of bark circumference or 2 in. length.
 4. Shrub- Height Die-back: More than 25% of the shrub height.
 5. Tree- Leader Die-back: More than 10% of tree height.
 6. Tree- Branch Die-back: More than 6 in. on 75% of branches.
6. Harford County (or a representative of the County) will complete a Final Inspection Report 36 months after installation to determine whether the requirements listed in Table 2 have been completed. The Final Inspection Report will include Punch List requirements for the project. Punch List requirements shall be completed as directed.

MEASUREMENT AND PAYMENT: The Maintenance of Plantings will be measured and paid for based on time and materials needed to complete the work.

Contract Manager - 1.5673 hours - \$75.00 per man hour

Skilled Field Technician - 21 hours - \$55.00 per man hour

Unskilled Field Technician - 21 hours - \$50.00 per man hour

Crew Truck and Trailer - 21 hours - \$8.45 per hour

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
Tree Maintenance- Existing Trees- Every 2-2.5 Months	20	Per Visit	\$2,500.00	\$49,999.95	<input type="checkbox"/>

Reforestation Low Mow Areas Only: Maintenance of old plantings. Maintenance of existing trees to include cutting off ground volunteers, removing old stakes and protective mesh, trimming lower branches as needed to promote healthy growth. No warranty on any existing tree plantings. 5 visits in 2022 and each additional calendar year through 2025.

Contract Manager - 1.5673 hours - \$75.00 per man hour

Skilled Field Technician - 21 hours - \$55.00 per man hour

Unskilled Field Technician - 21 hours - \$50.00 per man hour

Crew Truck and Trailer - 21 hours - \$8.45 per hour

Mowing of Low Mow Areas	8	Per Visit	\$5,000.00	\$40,000.00	<input type="checkbox"/>
--------------------------------	----------	------------------	-------------------	--------------------	--------------------------

Mowing of Low Mow areas 2x per calendar year through 2025. Repair any signage that has fallen over or broken. Does not include sign replacement. Signage provided by Harford County.

Contract Manager - 1.8 hours - \$75.00 per man hour

Skilled Field Technician - 20 hours - \$55.00 per man hour

Unskilled Field Technician - 20 hours - \$50.00 per man hour

Crew Truck and Trailer - 20 hours - \$8.25 per hour

Bush Hog - 40 hours - \$65.00 per hour

Tree Planting Mulching- Newly Planted	3	Per Visit	\$3,125.00	\$9,375.00	<input type="checkbox"/>
--	----------	------------------	-------------------	-------------------	--------------------------

Mulch new plantings for the duration of the maintenance contract with 1x application per year of fresh mulch to each planting ring starting in 2023 through 2025.

Contract Manager - 1.576 hours - \$75.00 per man hour

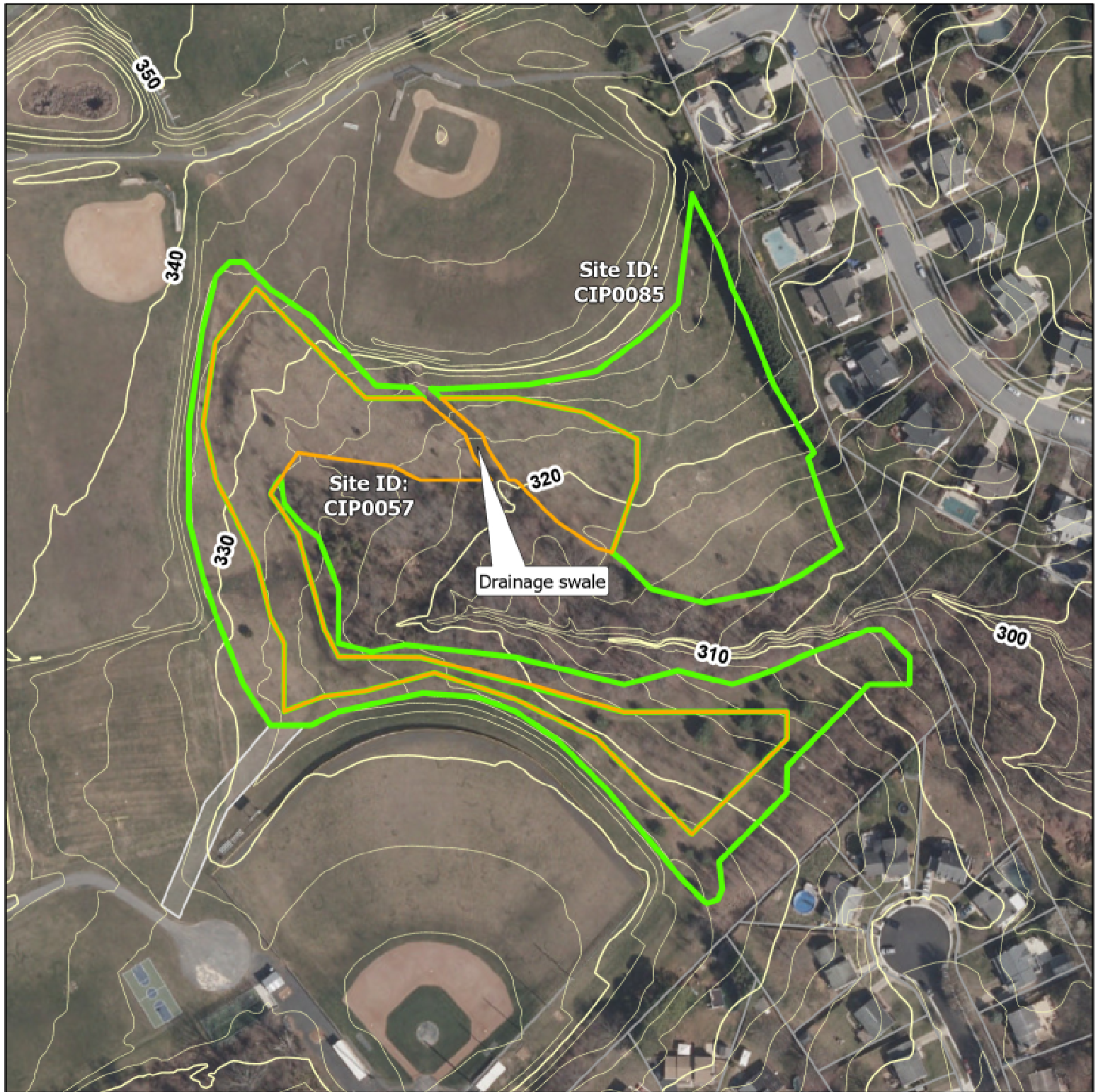
Skilled Field Technician - 21 hours - \$55.00 per man hour

Unskilled Field Technician - 21 hours - \$50.00 per man hour

Crew Truck and Trailer - 21 hours - \$8.25 per hour

Double Shredded Hardwood Mulch - 13 yards - 1.2 multiplier

Estimate Total \$191, 874.86



- █ Site Boundary
- █ Adjacent Site
- █ Infill Area
- █ Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
 Infill throughout as spacing allows between existing trees.
 Use wetter species adjacent to drainage swale.

Patterson Mill High School
Site ID: CIP0085
 85 Patterson Mill Road Bel Air, MD 21015



February 2022

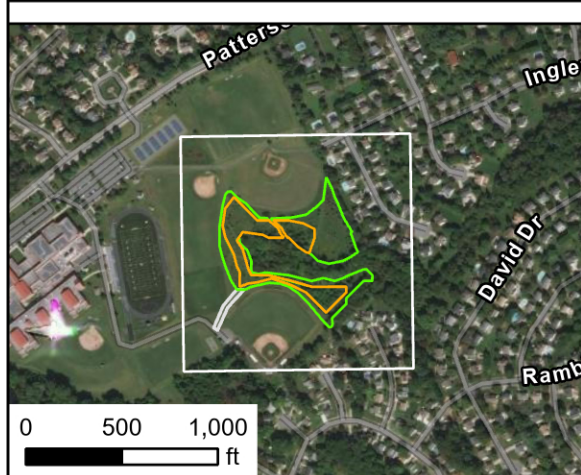
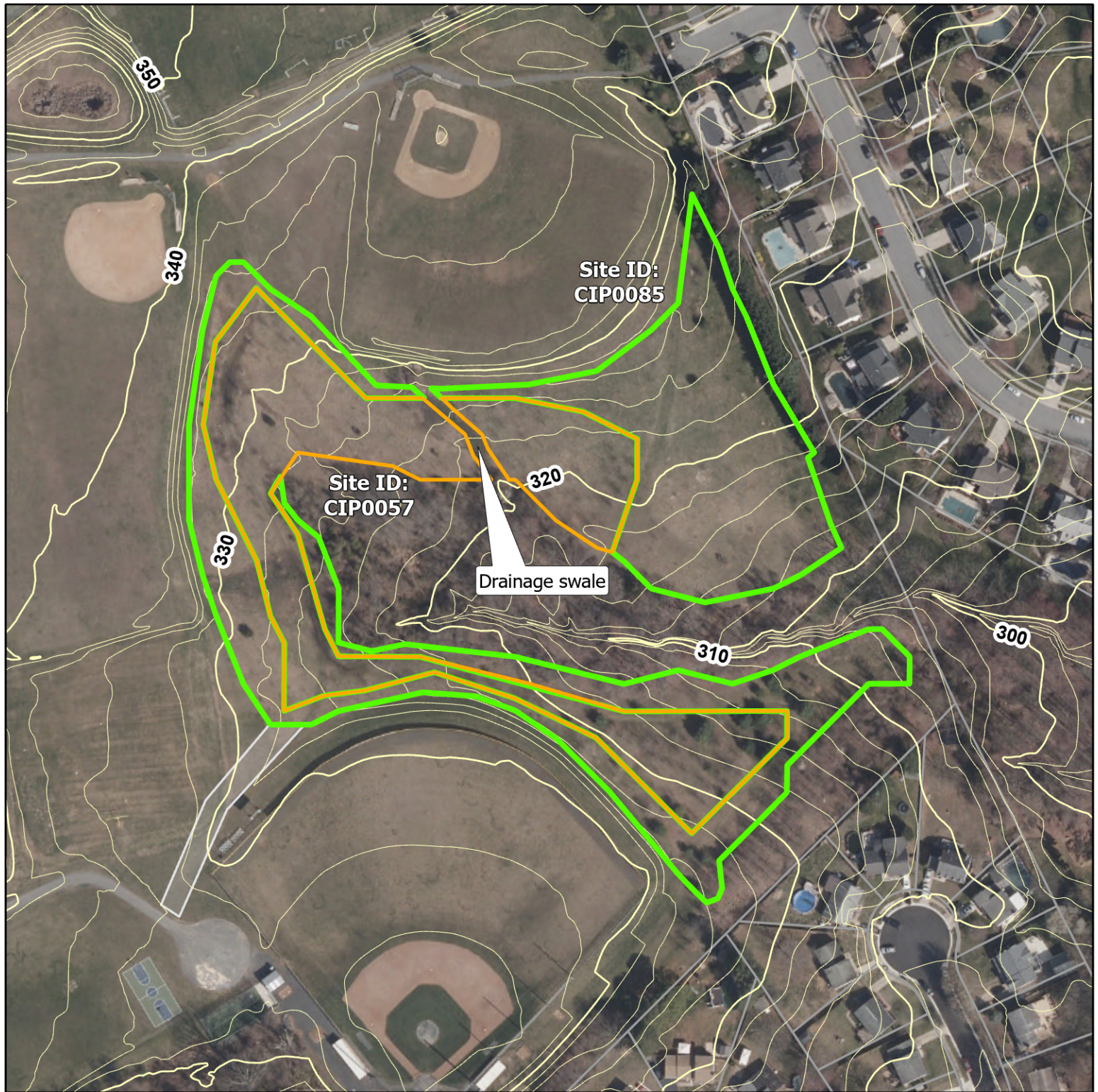
RK&K
 Responsive People | Creative Solutions



PATTERSON MILL HIGH SCHOOL PLANTING SCHEDULE

CIP0085							
Acreage	3.164	Current Trees/Acre		83	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
30	<i>Platanus occidentalis</i>	Sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Quercus coccinea</i>	Pin oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Quercus phellos</i>	Willow oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Populus deltoides</i>	Eastern cottonwood	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Carpinus caroliniana</i>	Ironwood	FAC	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
210	=total						

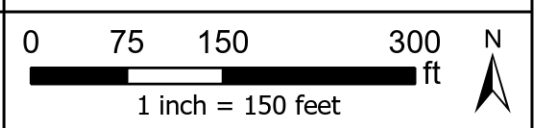
Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground.



- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
 Infill throughout as spacing allows between existing trees. Use wetter species adjacent to drainage swale.

Patterson Mill High School
Site ID: CIP0085
 85 Patterson Mill Road Bel Air, MD 21015



February 2022

RK&K
 Responsive People | Creative Solutions



PATTERSON MILL HIGH SCHOOL PLANTING SCHEDULE

CIP0085							
Acreage	3.164	Current Trees/Acre		83	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
30	<i>Platanus occidentalis</i>	Sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Quercus coccinea</i>	Pin oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Quercus phellos</i>	Willow oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Populus deltoides</i>	Eastern cottonwood	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Carpinus caroliniana</i>	Ironwood	FAC	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
30	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#5 Container	Single stem	Infill as indicated at approx 18' O.C
210	=total						

Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground.

BARRY GLASSMAN
HARFORD COUNTY EXECUTIVE



JOSEPH J. SIEMEK, P.E.
DIRECTOR OF PUBLIC WORKS


Date: May 2, 2022
To: Carolyn Combs
Administrative Budget Technician

Thru: Steven A. Walsh PE
Deputy Director of Public Works

Christine M. Buckley, PE
MS4 Program Manager

From: Michele Dobson
MS4 Monitoring Coordinator

Subject: Purchase order request
Contract/Bid # 21-100F Open- End Landscaping
Project Name: Red Pump ES Tree Planting Implementation and Maintenance

 5/6/22
Date

CM Buckley

Digitally signed by CM Buckley,
DN: cn=CM Buckley, email=cm.buckley@harfordcountymd.gov,
c=United States of America, ou=Public Works,
ou=Harford County, ou=Maryland,
date=2022.05.06.11:02:33-0400

Michele Dobson

Digitally signed by Michele Dobson,
DN: cn=Michele Dobson,
email=mdobson@harfordcountymd.gov,
ou=Watershed Protection and
Restoration, ou=Michele Dobson,
Reason: I am the author of this document,
date=2022.05.02.16:55:28-0400

Date

Date

Please issue a purchase order for the following:

PO Amount	\$115,624.58
Funding Account	A164105 County Owned Properties
Project End Date (required for Operating Accts. Only)	NA
Vendor	Four Season Landscaping
Contract/Bid # (with letter for design projects)	21-100F
Description of work	Red Pump ES Tree Planting was originally planted between 2013-2015 under the Stream Restoration Challenge Grant. In 2020, the planting was inspected and failed to meet MDE's tree planting BMP criteria. This PO request is for the implementation and maintenance of the reforestation plan developed to remain in compliance. The plan and costs are attached.
Board of Estimates (BOE) approval date if applicable	NA

Cc: K. Szymanowski; V. Yingling; S. Whalon

MARYLAND'S NEW CENTER OF OPPORTUNITY

410.638.3285 | 410.879.2000 | TTY Maryland Relay 711 | www.harfordcountymd.gov

212 S. Bond Street, Bel Air, Maryland 21014

THIS DOCUMENT IS AVAILABLE IN ALTERNATIVE FORMAT UPON REQUEST



Red Pump ES- Reforestation Tree Planting

Total Estimate #1 and #2: \$115,624.58

HARFORD COUNTY DEPT OF PUBLIC WORKS
212 S. BOND STREET
BEL AIR, MARYLAND 21014

Sales: Christopher R. Coleman, CBLP, MS4-SCP, QCSI

Red Pump Elem.- Reforestation Tree Planting

600 Red Pump Road Bel Air, Maryland 21014

Estimate #1 of 2: \$19,874.87

Est ID: EST3025827 2

Date: Apr-19-2022

Email: cmbuckley@harfordcountymd.gov

Phone: 410.638.3545 x1176

Christine, Michele, and Kate, Thank you for the opportunity to quote your project. Below is your breakdown. Please sign and return the proposal with P.O. and materials payment to receive a tentative start date. Thank you, Chris

Reforestation Planting- Labor

\$10,720.63

Provide and install trees to reforestation area as specified in design plans. Trees are as close to specified size requested. Availability dependent for installation. Note: Installation instructions edited by Harford County representatives. Due to changes in installation specifications, this contract is contingent upon execution and approval of maintenance contract, and any trees not meeting survivability rate in On-Call contract will be replaced at no cost for materials.

- Tree locations to fill in open gaps in the area will be marked with flags and paint.
- Exact tree planting locations will be string trimmed before installation.
- Approximately 1-2 foot deep x 1- 2 foot diameter holes will be dug.
- Fertilizer will be added to each planting.
- Trees will be planted at grade
- Finish with 2 foot diameter shredded mulch ring 2-3 inches deep.
- Install 1 tree protection mesh, 1 stake, and tree securement rope to each tree.
- Spread all excess planting soil around site. Remove all other non-organic debris associated with planting.
- Apply 5 gallons of water to each newly planted tree.

20 Hours	HC- Contract Manager- \$75.00/MH	\$1500.00
10 Hours	HC- Field Supervisor- \$65.00/MH	\$650.00
52.5 Hours	HC- Skilled Field Technician- \$55.00/MH	\$2887.50
105 Hours	HC- Unskilled Field Technician- \$50.00/MH	\$5250.00
52.5 Hours	Crew Truck + Trailer	\$433.13

Reforestation Planting- Equipment & Materials**\$9,154.24**

Equipment and materials required to perform the reforestation tree planting.

9 Each	Platanus occidentalis- American Sycamore - #7 Container- x 1.2 multiplier	\$1124.37
9 Each	Quercus palustris- Pin Oak - #5 Container - 3/4" cal.- x 1.2 multiplier	\$952.56
9 Each	Quercus phellos- Willow Oak - #3 Container- 3/4" cal.- x 1.2 multiplier	\$430.92
16 Each	Amelanchier canadensis- Serviceberry - #5 Container- x 1.2 multiplier	\$1330.56
16 Each	Cercis canadensis- Eastern Redbud - #5 Container- x 1.2 multiplier	\$1330.56
7 Each	Liriodendron tulipifera- Tulip Tree - #7 Container- 3/4" cal.- x 1.2 multiplier	\$793.80
7 Each	Quercus coccinea- Scarlet Oak - #7 Container- 3/4" cal.- x 1.2 multiplier	\$804.86
7 Each	Quercus velutina- Black Oak - 5gal container- 3/4" cal.- x 1.2 multiplier	\$617.40
5 Yard	Mulch - Double Shredded Hardwood- x 1.2 multiplier	\$241.75
4 25lb bag	Fertilizer- Healthy Start Fertilizer with Mycorrhizal Fungi- x 1.2 multiplier	\$348.92
80 Each	Heavy Duty Tree Stake- x 1.2 multiplier	\$703.20
16 per 5	Rigid Plastic Mesh Tree Guards - 4 in. diameter, 48 in. height- x 1.2 multiplier	\$397.76
1 100/Bag	14" Cable/Wire tie- x 1.2 multiplier	\$16.33
1 Roll	Tree Tie Rope - 250'- x 1.2 multiplier	\$37.25
400 Gallon	Water- Provided to Customer	\$24.00
Subtotal		\$19,874.87
Taxes		\$0.00
Estimate Total		\$19,874.87

Contract Payment Summary**PO #****Contract #**

Four Seasons Landscape & Construction
Services, Inc
1200-C Agora Drive, Ste 131
Bel Air, Maryland
21014

P.443.390.9273

www.fourseasonslandscapemd.com

chris@fourseasonslandscapemd.com



Red Pump ES Reforestation Maintenance Proposal

Estimate #2 of 2: \$95,749.71

HARFORD COUNTY DEPT OF PUBLIC WORKS
212 S. BOND STREET
BEL AIR, MARYLAND 21014

Sales: Christopher R. Coleman, CBLP, MS4-SCP, QCSI

Reforestation Maintenance of Plantings- Red Pump ES
600 Red Pump Road Bel Air, Maryland 21014

Est ID: EST1684416

Date: Apr-28-2022

Email: cmbuckley@harfordcountymd.gov

Phone: 410.638.3545 x1176

Christine, Michele, and Kate, Thank you for the opportunity to quote your project. Below is your breakdown. Please sign and return the proposal with P.O. Thank you, Chris

Contract Term: Our contract shall start on June 1, 2022, and continue until December 31, 2025. Contract includes 7 month period for first year, and 10 month periods for each of the following three years, from March through December for monthly tree maintenance. Maintenance of existing trees to be completed 5 times for each contract year. Mowing of low mow areas to be completed twice per year for each contract year. Spring mulching to be completed for each contract year, starting in 2023, and shall be completed in March. All visit counts and seasonal totals listed below show total for entire contract period.

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
Tree Maintenance- Newly Planted- Monthly	37	Per Visit	\$1,250.00	\$46,249.82	<input type="checkbox"/>

Reforestation Low Mow Areas Only: Maintenance of new plantings. 7 visits in 2022 and 10 visits per additional calendar year through 2025.

MAINTENANCE OF PLANTINGS:

DESCRIPTION: This effort shall include maintenance of all newly planted trees and shrubs as described below.

MAINTENANCE OPERATIONS:

Maintenance of Plantings: Maintenance of planted stock begins after installation is complete. The contractor shall provide care for the plantings, as specified below.

1. Period of Maintenance: Trees, shrubs, and deer protection shall be maintained for 36 months/ 3 calendar

Four Seasons Landscape & Construction
Services, Inc
1200-C Agora Drive, Ste 131
Bel Air, Maryland
21014

P.443.390.9273

www.fourseasonslandscapemd.com

chris@fourseasonslandscapemd.com

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
<p>years after installation.</p> <ol style="list-style-type: none"> Notification: The Contractor shall provide Harford County a minimum 72 hour notice before accessing the site. Plant Watering: The contractor shall ensure that soil moisture and water needs of plants are monitored, and water is applied as needed to maintain adequate growing conditions. The frequency and duration of watering shall be dictated by the nature of the on-site soils and the amount of rainfall. <ol style="list-style-type: none"> Watering equipment shall consist of sprinklers or hoses equipped with water breaker nozzles, so the water is applied with care to prevent damage to plants and minimize disturbance to soil and/or shredded hardwood bark mulch. Pest Management: Weeds, insects, and other pests should be monitored and controlled as needed to promote adequate growing conditions. If requested by Harford County, or in the event that weeds, insects, or pests pose a significant threat to the success of the plantings, an Integrated Pest Management (IPM) Program shall be developed. The IPM program shall be provided to the County for review and approval. <ol style="list-style-type: none"> Pesticides shall be applied in conformance with the Maryland Pesticide Applicator's Law, OSHA and MOSH regulations, and the manufacturer's label and Safety Data Sheets (SDS). Pesticides shall be applied by a Maryland Certified Pesticide Applicator, or by a Registered Pesticide Applicator under the supervision of a Certified Pesticide Applicator. When applying pesticides, ensure there is no damage to the plantings or non-target vegetation. Location and details of pesticide applications must be documented on the Pesticide Application Reporting Form. The contractor must submit the form to the proper agency(s) within 24 hours and maintain all records of application and copy the County on the submittal. In preparation for inspection, weeds shall be controlled within the planting pits and dead weeds taller than 6 in should be removed. Deer Protection: Deer protection should be replaced when damaged, missing, knocked over, or found to be interfering with plant growth. Warranty and Maintenance Inspections: <ol style="list-style-type: none"> All plant materials furnished and installed under this Contract shall be guaranteed for a period of one (1) year from the date of acceptance of the work by Harford County. The Contractor shall include the cost of maintenance in the cost proposal. Survivability shall be 85% for trees and shrubs. The Contractor shall provide plantings maintenance (weeding and watering) as needed to achieve this survival rate. Herbicide, fungicide, and fertilizer applications may be allowed for plantings maintenance if prior approval is received from Harford County. In addition, leaf litter mulch can be used for suppression of invasive plants for reforestation project. After any planting is completed a program of watering shall be instituted that is sufficient to support proper plant growth and insure survivability. The frequency and duration of watering shall be dictated by the nature of the on-site soils and the amount of rainfall. Biannual Inspections: Harford County (or a representative of the County) will inspect the planting site every six months after installation, monitoring whether the actions in Table 2 have been completed. One-Year Warranty Inspection: The One-Year Warranty Inspection shall be conducted a year after the installation date and include an assessment of unacceptable plants, per the criteria listed in Table 3, that require replacement per the one-year warranty required by the contract. Replanting will be required if fewer than 85% of the trees and shrubs are considered acceptable during the one-year warranty inspection. Replacement Plants: Replacement plants shall be true to species, cultivar, size, and quality as specified in the purchase order unless a modification request is approved. Replacement plants shall be installed as soon as feasible during the current Planting Season (as defined below). If identified between Planting Seasons, replacement plants shall be installed during the next Planting Season, as defined below. A modification request shall be promptly submitted when it is not possible to obtain plants that meet specifications. The Contractor shall not be paid for time or 					

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
----------------	--------	--------------	-------------	--------------	-----

materials associated with installing replacement plants as required by the contract terms and covered under the one-year warranty.

- i. Spring Planting Season. February 1 through June 30. Do not install plants in July.
- ii. Fall Planting Season. August 1 through December 31. Do not install plants in January.
- iii. TABLE 2 – INSPECTION REQUIREMENTS
 1. Watering has been performed as needed and/or requested.
 2. Trees are straightened.
 3. Deer protection is repaired or replaced.
 4. Washouts in planting pits are repaired.
 5. Plants are successfully established.
 6. Damaging pests are controlled.
 7. Planting pits are weed and pest free.
 8. Pesticide Application Forms are completed.
 9. Punch List items are completed.
- iv. TABLE 3- CRITERIA FOR UNACCEPTABLE PLANTS
 1. Tree, Shrub- Dead or Missing: Any dead or missing plant, any cause.
 2. Tree, Shrub- Defoliation: More than 25% of leaf area dead, lost or dropped.
 3. Tree, Shrub- Bark Wound: More than 15% of bark circumference or 2 in. length.
 4. Shrub- Height Die-back: More than 25% of the shrub height.
 5. Tree- Leader Die-back: More than 10% of tree height.
 6. Tree- Branch Die-back: More than 6 in. on 75% of branches.
6. Harford County (or a representative of the County) will complete a Final Inspection Report 36 months after installation to determine whether the requirements listed in Table 2 have been completed. The Final Inspection Report will include Punch List requirements for the project. Punch List requirements shall be completed as directed.

MEASUREMENT AND PAYMENT: The Maintenance of Plantings will be measured and paid for based on time and materials needed to complete the work.

Contract Manager - 0.7836 hours - \$75.00 per man hour

Skilled Field Technician - 10.5 hours - \$55.00 per man hour

Unskilled Field Technician - 10.5 hours - \$50.00 per man hour

Crew Truck and Trailer - 10.5 hours - \$8.45 per hour

Extra Services	Visits	Billing Type	Visit Price	Season Price	OK?
Tree Maintenance- Existing Trees- Every 2-2.5 Months	20	Per Visit	\$1,250.00	\$24,999.90	<input type="checkbox"/>

Reforestation Low Mow Areas Only: Maintenance of old plantings. Maintenance of existing trees to include cutting off ground volunteers, removing old stakes and protective mesh, trimming lower branches as needed to promote healthy growth. No warranty on any existing tree plantings. 5 visits in 2022 and each additional calendar year through 2025.

Contract Manager - 0.7836 hours - \$75.00 per man hour

Skilled Field Technician - 10.5 hours - \$55.00 per man hour

Unskilled Field Technician - 10.5 hours - \$50.00 per man hour

Crew Truck and Trailer - 10.5 hours - \$8.45 per hour

Mowing of Low Mow Areas	8	Per Visit	\$2,500.00	\$20,000.00	<input type="checkbox"/>
--------------------------------	----------	------------------	-------------------	--------------------	--------------------------

Mowing of Low Mow areas 2x per calendar year through 2025. Repair any signage that has fallen over or broken. Does not include sign replacement. Signage provided by Harford County.

Contract Manager - 0.9 hours - \$75.00 per man hour

Skilled Field Technician - 10 hours - \$55.00 per man hour

Unskilled Field Technician - 10 hours - \$50.00 per man hour

Crew Truck and Trailer - 10 hours - \$8.25 per hour

Bush Hog - 20 hours - \$65.00 per hour

Tree Planting Mulching- Newly Planted	3	Per Visit	\$1,500.00	\$4,499.99	<input type="checkbox"/>
--	----------	------------------	-------------------	-------------------	--------------------------

Mulch new plantings for the duration of the maintenance contract with 1x application per year of fresh mulch to each planting ring starting in 2023 through 2025.

Contract Manager - 0.9216 hours - \$75.00 per man hour

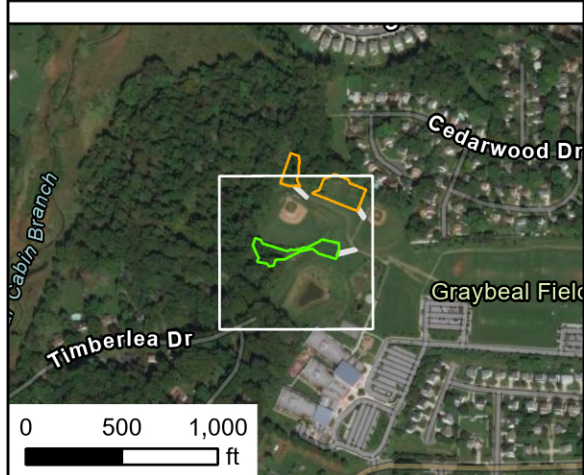
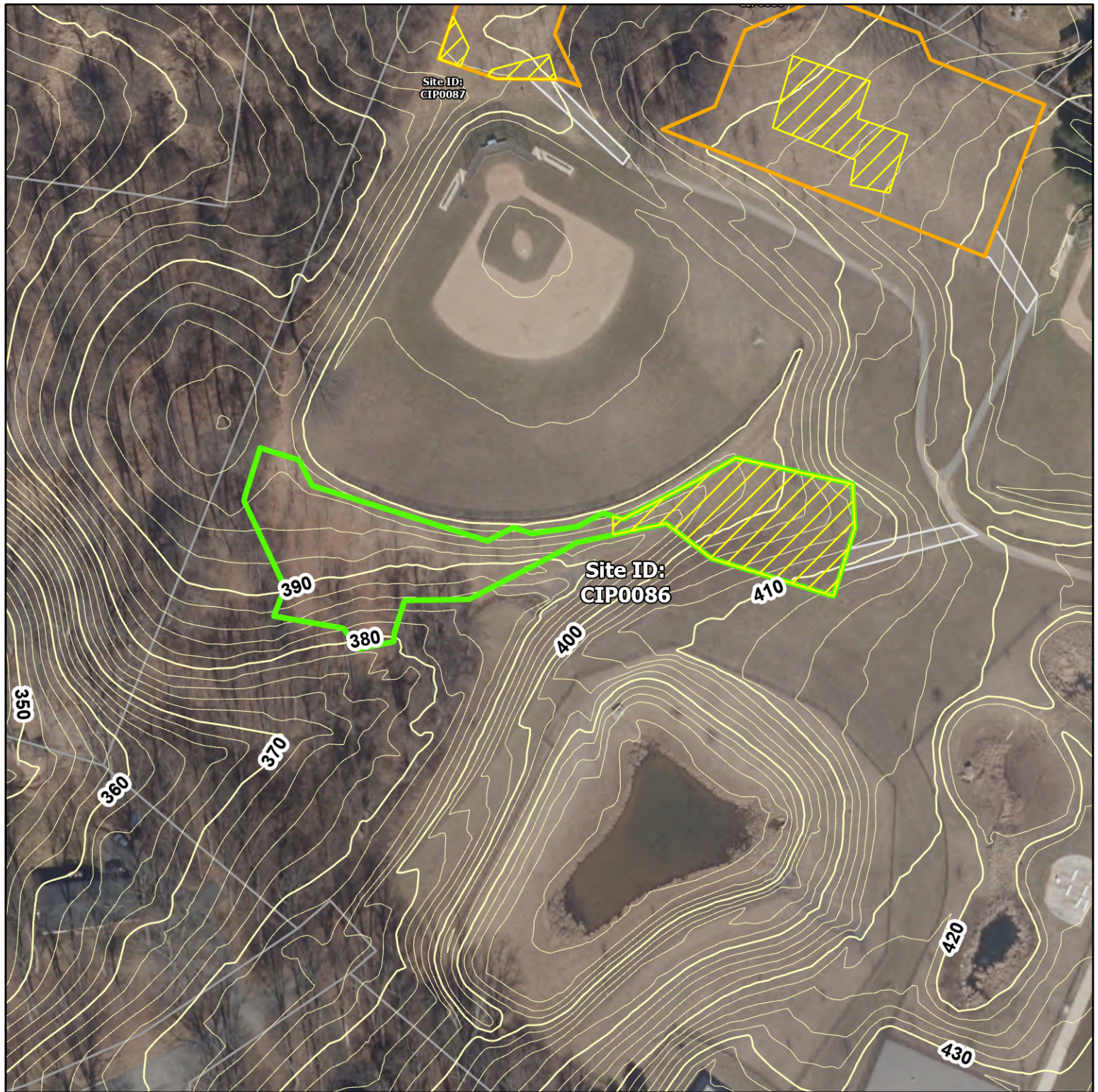
Skilled Field Technician - 10.5 hours - \$55.00 per man hour

Unskilled Field Technician - 10.5 hours - \$50.00 per man hour

Crew Truck and Trailer - 10.5 hours - \$8.25 per hour

Double Shredded Hardwood Mulch - 5 yards - x1.2 multiplier

Estimate #2: \$95,749.71



- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:
 Infill plants as indicated on plans and as spacing allows between existing trees.

Red Pump Elementary School
Site ID: CIP0086
 600 Red Pump Road Bel Air, MD 21024

0 50 100 200
 1 inch = 100 feet

N

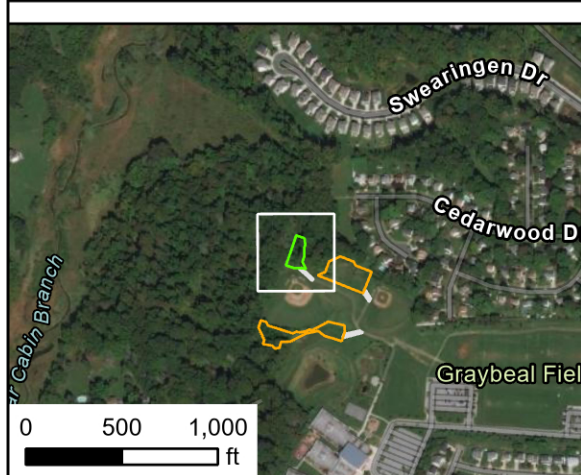
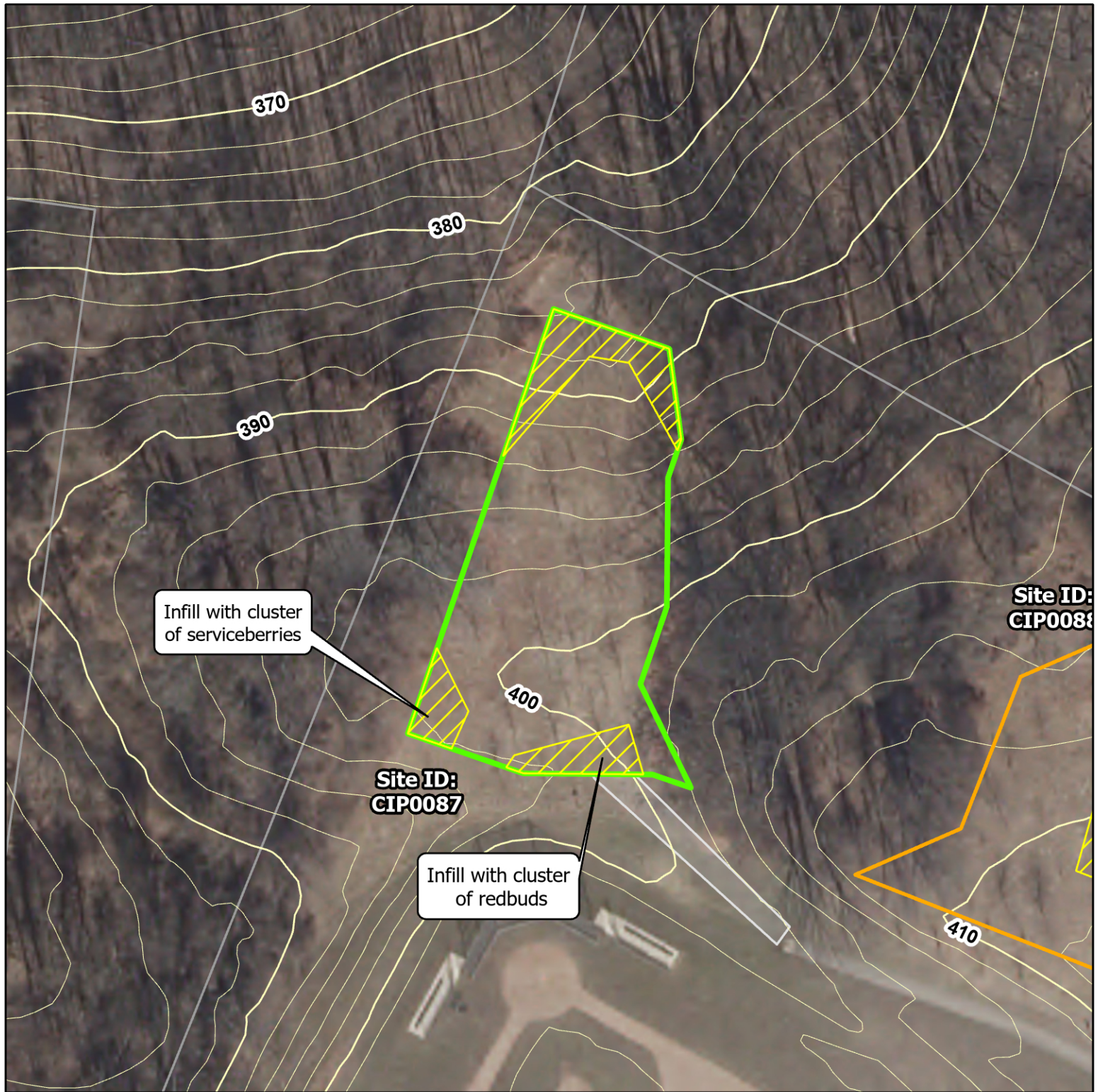
February 2022

RK&K
 Responsive People | Creative Solutions

RED PUMP ELEMENTARY SCHOOL - PLANTING SCHEDULE							
CIP0086							
Acreage	0.60	Current Trees/Acre		100	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
6	<i>Platanus occidentalis</i>	Sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
6	<i>Quercus palustris</i>	Pin oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
6	<i>Quercus phellos</i>	Willow oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
6	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
6	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
30	=total						

Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground

Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground



- ▬ Site Boundary
- ▬ Adjacent Site
- ▨ Infill Area
- ▨ Do Not Plant
- ▬ Contours (2ft)
- ▬ Access Route
- ▬ Property Boundary

Planting Notes:
 Infill plants as indicated on plans and as spacing allows between existing trees.

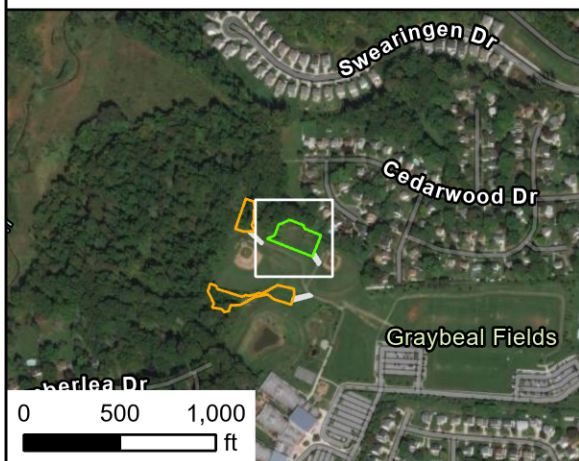
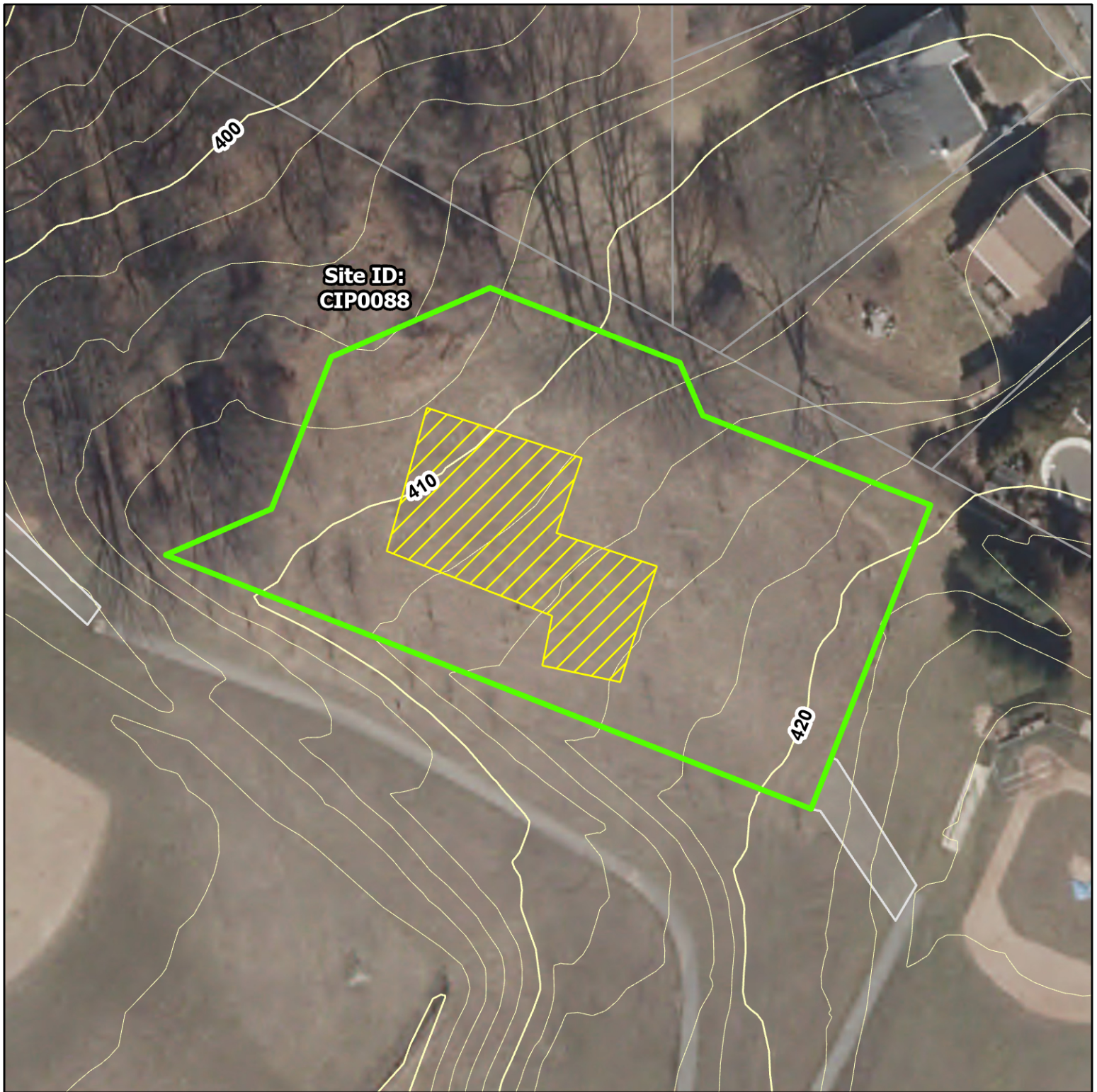
Red Pump Elementary School Site ID: CIP0087 600 Red Pump Road Bel Air, MD 21024	
0 25 50 100 N ─────────── ft 1 inch = 50 feet	
February 2022	

RED PUMP ELEMENTARY SCHOOL - PLANTING SCHEDULE

CIP0087

Acreage	0.26	Current Trees/Acre		91	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
3	<i>Platanus occidentalis</i>	Sycamore	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
3	<i>Quercus palustris</i>	Pin oak	FACW	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
3	<i>Quercus phellos</i>	Willow oak	FAC	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
3	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
3	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
12	=total						

Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground



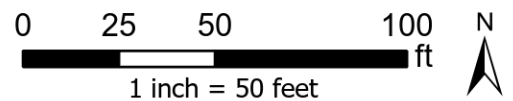
- Site Boundary
- Adjacent Site
- Infill Area
- Do Not Plant
- Contours (2ft)
- Access Route
- Property Boundary

Planting Notes:

Infill plants as indicated on plans and as spacing allows between existing trees.

Red Pump Elementary School
Site ID: CIP0088

600 Red Pump Road Bel Air, MD 21024



February 2022



RED PUMP ELEMENTARY SCHOOL - PLANTING SCHEDULE

CIP0088

Acreage	0.65	Current Trees/Acre		98	Proposed Trees/Acre		150
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Placement
	TREES						
7	<i>Liriodendron tulipifera</i>	Tulip poplar	FACU	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
7	<i>Quercus coccinea</i>	Scarlet oak	UPL	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
7	<i>Quercus velutina</i>	Black oak	UPL	1" caliper	#7 Container	Single stem	Infill as indicated at approx 18' O.C
7	<i>Amelanchier canadensis</i>	Serviceberry	FAC	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
7	<i>Cercis canadensis</i>	Redbud	FACU	5' height	#3 Container	Single stem	Infill as indicated at approx 18' O.C
35	=total						

Deer Protection: All trees shall receive 5' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground

dobson, michele

From: Rich Lefebure <rlefebure@rkk.com>
Sent: Friday, July 29, 2022 9:25 AM
To: dobson, michele
Cc: Gordon, Kate
Subject: Summary of Patterson Mill HS and Red Pump ES Final Planting Inspections on 7/25/22
Attachments: DSCN4077.JPG; DSCN4091.JPG; DSCN4102.JPG; DSCN4111.JPG; DSCN4113.JPG

[EXTERNAL SENDER]

Hi Michele,

Please find a summary of the results of the Patterson Mill and Red Pump planting site inspections completed on Monday, 7/25. Please let us know if you have any questions or would like any additional detail.

Patterson Mill (Photos 4077, 4091, 4102)

Observations:

- The plantings look good overall, but it appears many of the trees suffered due to the duration of the planting period.
- Many of the trees sat on site in their containers for an extended period of time and the heat and drought stress is evident, particularly on the willow oaks and sycamores. Roughly half of the willow oaks have died outright and roughly a third of the sycamores have significant branch/leader die back. The sycamores are responding well with new shoots and may be able to pull through.
- The tree shelters used at the site are soft white plastic mesh that do not meet project specifications or the invoice itself (which identifies "Rigid Plastic Mesh Tree Guards").
 - Note that Four Seasons invoiced DPW for 210 of these plastic mesh shelters with stakes, but only 150 were installed. 60 of the trees received the metal cages. I believe the previous invoice with the 210 plastic shelters was already paid, so if Four Seasons sends another invoice for the 60 metal cages, that discrepancy will need to be accounted for.
- The metal cages on the redbud and serviceberry look good and provide plenty of room for branching.
- There was some minor deer browse, but it did not appear to be widespread.
- There is a moderate population of Spotted Lanternfly on site and they seemed to be most prevalent on the river birch.
- Overall the number of unacceptable plants is roughly 10%.
- Many of the ironwood and serviceberries also appear to be dry/desiccated.

Recommendations:

- Water the trees at least every two weeks through early September to help them through the remainder of the summer, as needed based on weather conditions.
- Reassess the number of unacceptable plants in June 2023 and replant to 100% if the survival rate is less than 85%
- Make sure Four Seasons knows that the tree shelters used at the site are soft white plastic mesh that do not meet project specifications or the invoice itself (which identifies "Rigid Plastic Mesh Tree Guards") and should not be used on other sites in the future.
- Conduct maintenance to control invasive species in existing tree planting pits.
 - Some of these existing trees may be on the adjacent site (CIP0057), which isn't clearly covered by this contract, but I believe we had discussed this work during the field meeting.
 - The most prevalent invasive species are multiflora rose and honeysuckle, but other vines are also present and should be controlled.

- Recommend using hand tools to clear the planting pits, with herbicides only being used via cut stump application (if herbicide use is approved by HCPS).

Red Pump (Photos 4111, 4113)

Observations:

- At Red Pump we have the same shelter concerns as Patterson Mill. 48 trees received soft plastic mesh while 32 received metal cages, but Four Seasons invoiced for 80 soft plastic mesh shelters.
- On site CIP0086, every species of oak experienced heavy to complete defoliation. Some of the oaks are already putting out new leaves, so most will survive this year, but another year of defoliation will likely kill all of them. It appears the defoliation was done by a caterpillar, though no caterpillars or insects of note were observed. The older swamp white oaks on site appeared to be completely unaffected. It's possible that the culprit targeted younger trees with less tannins or phenols. The serviceberries also experienced moderate to heavy defoliation on this site. The trees looked fine during the last site inspection in May, so we should check in with Chris to see if he noticed the defoliation during any of his recent visits.
 - On site CIP0088, the defoliation was mild to moderate and found mainly on the oaks, serviceberries and tulip poplars.
 - Site CIP0087 did not have any signs of defoliation or insect damage. Based on this, it is unlikely that pests were brought in with the plant material.
- The downed trees at CIP0087 that Chris mentioned are still there and damaged some of the larger sycamores that were previously planted. It's worth having the downed trees removed so that the site can be properly mowed and maintained.
- No lanternflies or signs of deer browse at any of the Red Pump sites.
- Heat/drought stress was not evident.

Recommendations:

- Water the trees at least every two weeks through early September as needed based on weather conditions.
- Remove the downed trees at site CIP0087.
- Reassess the number of unacceptable plants in June 2023 and replant to 100% if the survival rate is less than 85%.
- Make sure Four Seasons knows that the tree shelters used at the site are soft white plastic mesh that do not meet project specifications or the invoice itself (which identifies "Rigid Plastic Mesh Tree Guards") and should not be used on other sites.

Thanks!

Rich

"RK&K" and "RK&K Engineers" are registered trade names of Rummel, Klepper & Kahl, LLP, a Maryland limited liability partnership. This message contains confidential information intended only for the person or persons named above. If you have received this message in error, please immediately notify the sender by return email and delete the message. Thank you.

Rummel, Klepper and Kahl, LLP ensures nondiscrimination in all programs and activities in accordance with Title VI of the Civil Rights Act of 1964. If you need more information or special assistance for persons with disabilities or limited English proficiency, contact our Human Resources office at (410) 728-2900 for further assistance.

Rummel, Klepper and Kahl, LLP is an equal opportunity employer that values diversity at all levels.

Environmental Quality Resources, LLC

1 Church View Road
Millersville, MD 21108

(410) 923-8680 Fax (410) 923-8683

To:	Harford County	Contact:	
Address:	Department Of Public Works, 212 South Bond Street Belair, MD 21014	Phone:	(410) 638-3000
		Fax:	(410) 879-2000
Project Name:	HAL-3803 North Harford Elementary School	Bid Number:	
Project Location:		Bid Date:	

Environmental Quality Resources, LLC proposes to provide the following environmental services:

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Contract Manager	2.00	HR	\$69.14	\$138.28
6	Field Supervisor	16.00	HR	\$66.26	\$1,060.16
7	Skilled Field Technician	24.00	HR	\$43.21	\$1,037.04
10	Unskilled Field Technician	176.00	HR	\$43.21	\$7,604.96
25	Water Truck	40.00	HR	\$86.16	\$3,446.40
47	Materials Non-Plant (x1.2)	1.20	LS	\$2,994.13	\$3,592.96
49	Materials- Shrub (x1.55)	1.55	LS	\$1,144.80	\$1,774.44
50	Materials- Tree (x1.55)	1.55	LS	\$5,946.60	\$9,217.23

Total Bid Price: \$27,871.47

Notes:

- EQR proposes to provide all labor, materials, and equipment necessary to complete the work outlined in the Draft Mapbook(documents) dated 9/8/2022, as designed by RKK.
- EQR's proposed scope of work includes the following items outlined below:
 - Installation of 102, 1" caliper tree with plastic mesh shelters
 - Installation of 34, 6' HT trees with cages
 - Installation of 45, 5 gal shrubs with cages
 - Mulch
 - Watering for 1 year
 - 1 year, 1 time replacement warranty
- The following items are not included in EQR's scope of work:
 - Permit fees or preparation
 - Wage Rates / Certified Payroll
 - MBE or other MFD participation percentages
 - All work not explicitly stated in the Line Items
 - Maintenance with the exception of watering
- This proposal will remain in effect for 60 days from the date of issue.

Payment Terms:

Items of work will be invoiced based on percent complete. Payment will be expected within 30 days upon date of invoice. A monthly interest charge of 1.5% will be billed on all unpaid accounts (18%APR).

ACCEPTED: The above prices, specifications and conditions are satisfactory and are hereby accepted. Buyer: _____ Signature: _____ Date of Acceptance: _____	CONFIRMED: Environmental Quality Resources, LLC Authorized Signature: _____ Estimator: Allison Valenzia (410) 923-8680 x108 avalenzia@eqrllc.com
---	--

Environmental Quality Resources, LLC

1 Church View Road
Millersville, MD 21108
(410) 923-8680 Fax (410) 923-8683

To: Harford County	Contact:
Address: Department Of Public Works, 212 South Bond Street Belair, MD 21014	Phone: (410) 638-3000 Fax: (410) 879-2000
Project Name: HAL-3803 North Harford High School	Bid Number:
Project Location:	Bid Date:

Environmental Quality Resources, LLC proposes to provide the following environmental services:

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Contract Manager	2.00	HR	\$69.14	\$138.28
6	Field Supervisor	16.00	HR	\$66.26	\$1,060.16
7	Skilled Technician	24.00	HR	\$43.21	\$1,037.04
10	Unskilled Field Laborer	176.00	HR	\$43.21	\$7,604.96
25	Water Truck	40.00	HR	\$86.16	\$3,446.40
32	Drill Seeder	8.00	HR	\$54.61	\$436.88
47	Materials Non-Plant (x1.2)	1.20	LS	\$3,591.42	\$4,309.70
49	Material - Shrub (x1.55)	1.55	LS	\$1,221.12	\$1,892.74
50	Materials - Tree (x1.55)	1.55	LS	\$6,566.70	\$10,178.39

Total Bid Price: \$30,104.55

Notes:

- EQR proposes to provide all labor, materials, and equipment necessary to complete the work outlined in the Draft Mapbook (documents) dated 9/8/2022, as designed by RKK.
- EQR's proposed scope of work includes the following items outlined below:
 - Installation of 82, 1" caliper trees with plastic mesh shelters
 - Installation of 53, 6' HT trees with cages
 - Installation of 48, 5 gallon shrubs with cages
 - Drill seeding .25 acre
 - Mulch
 - Watering for 1 year
 - 1 year, 1 time replacement
- The following items are not included in EQR's scope of work:
 - Permit fees or preparation
 - Wage Rates / Certified Payroll
 - MBE or other MFD participation percentages
 - Maintenance with the exception of watering
- This proposal will remain in effect for 60 days from the date of issue.

Payment Terms:

Items of work will be invoiced based on percent complete. Payment will be expected within 30 days upon date of invoice. A monthly interest charge of 1.5% will be billed on all unpaid accounts (18%APR).

ACCEPTED: The above prices, specifications and conditions are satisfactory and are hereby accepted. Buyer: _____ Signature: _____ Date of Acceptance: _____	CONFIRMED: Environmental Quality Resources, LLC Authorized Signature: _____ Estimator: Allison Valenzia (410) 923-8680 x108 avalenzia@eqrllc.com
---	--



Harford County Parcel Assessment -
Land Cover Conversion BMP Opportunities

North Harford ES, North Harford MS

Property Acreage: 59.03 Acres
Total BMP Planting Acreage: 4.37 Acres
Total Impervious Acre Credit: 3.30 Acres

BMP Type

- Meadow Planting
- Forest Planting
- Riparian Forest Planting
- Urban Tree Canopy

Hydology

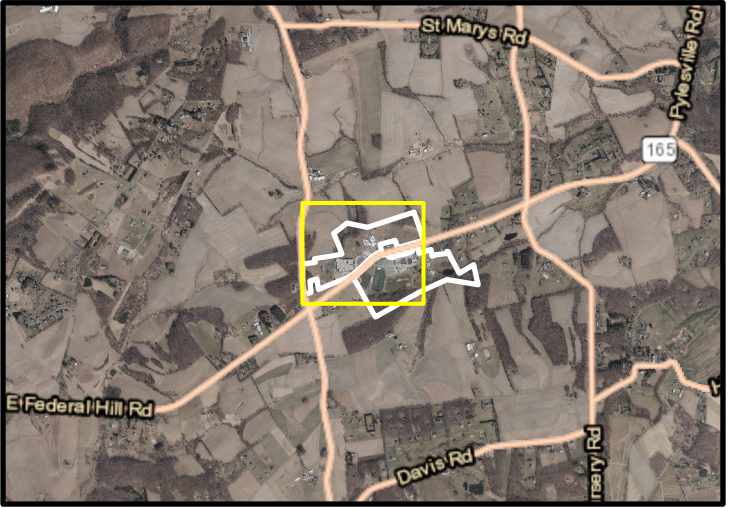
- DNR Wetlands
- NWI Wetlands
- Forest Conservation Areas
- Stream Challenge Grant Sites
- 100 Year Floodplain (1% Chance)
- Floodway (1% Chance)

Existing Stormwater BMPs

Property Boundary

0 130 260 520 US Feet
1 inch = 250 feet

N





Harford County Parcel Assessment -
Land Cover Conversion BMP Opportunities

North Harford HS

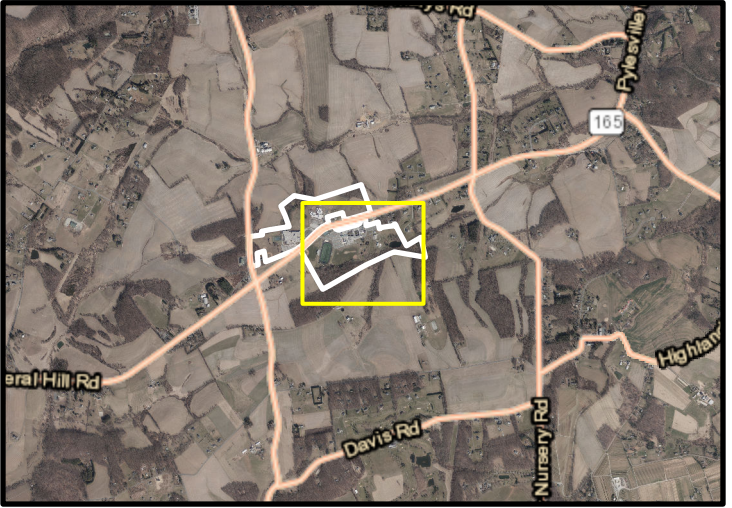
Property Acreage: 67.11 Acres
Total BMP Planting Acreage: 1.35 Acres
Total Impervious Acre Credit: 0.43 Acres

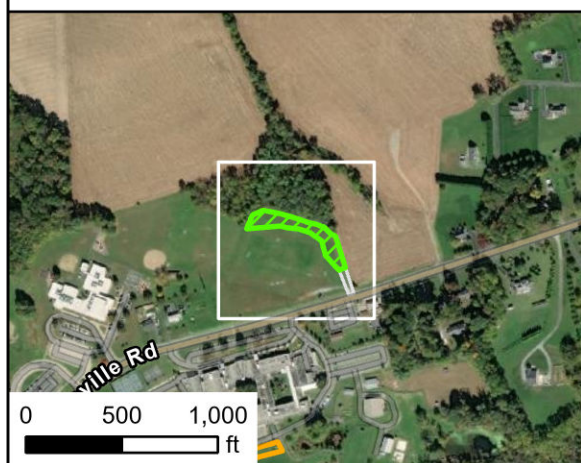
BMP Type






- Meadow Planting
- Forest Planting
- Riparian Forest Planting
- Urban Tree Canopy
- Hydology
- DNR Wetlands
- NWI Wetlands
- Forest Conservation Areas
- Stream Challenge Grant Sites
- 100 Year Floodplain (1% Chance)
- Floodway (1% Chance)
- Existing Stormwater BMPs
- Property Boundary

0 130 260 520 US Feet
1 inch = 250 feet

N





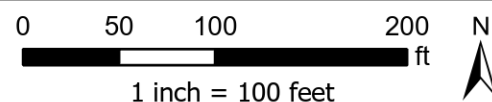
-  Forest Planting
-  Urban Tree Canopy
-  Conservation Landscaping
-  Adjacent Site
-  Access Route

Planting Notes:

North Harford Elementary School

Site ID: SS0076

120 Pylesville Rd Pylesville, MD 21132



August 2022

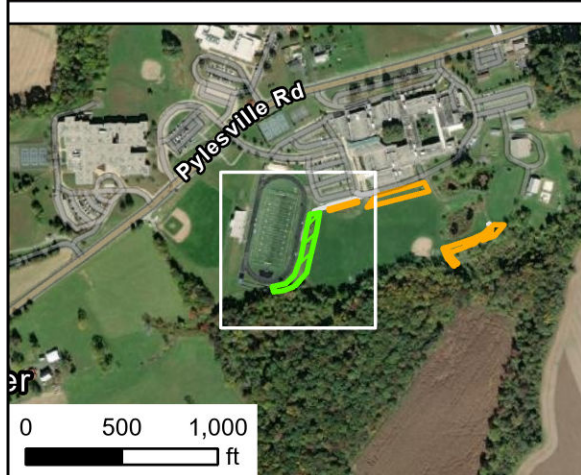


NORTH HARFORD ES FOREST PLANTING - PLANTING SCHEDULE

SS0076								
Trees								
Acreage	0.91	Proposed Trees/Acre		150				
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Size at Maturity	Placement
TREES								
20	<i>Liriodendron tulipifera</i>	Tulip poplar	FACU	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
14	<i>Acer rubrum</i>	Red maple	FAC	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
14	<i>Quercus velutina</i>	Black oak	UPL	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
20	<i>Quercus alba</i>	White oak	FACU	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
20	<i>Robinia pseudoacacia</i>	Black locust	FACU	1" caliper	#7 Container	Single stem	Medium tree	Approx 15' O.C
14	<i>Ostrya virginiana</i>	Hophornbeam	FACU	1" caliper	#7 Container	Single stem	Medium tree	Approx 15' O.C
14	<i>Cornus florida</i> 'Appalachian Spring'	Flowering dogwood 'Appalachian Spring'	FACU	6' height	#5 Container	Single stem	Small tree	Approx 18' O.C
20	<i>Cercis canadensis</i>	Redbud	FACU	6' height	#5 Container	Single stem	Small tree	Approx 18' O.C
136	=total							
Shrubs								
Proposed Shrubs/Acre		50						
15	<i>Hamamelis virginiana</i>	Witch hazel	FACU	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
15	<i>Kalmia latifolia</i>	Mountain laurel	FACU	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
15	<i>Viburnum prunifolium</i>	Blackhaw	FACU	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
45	=total							

Deer Protection: All 1" caliper trees shall receive 4' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground. All 6' height trees and all shrubs shall receive 5' tall, 30" diameter welded wire cages secured using 6 zip ties to three 1"x1"x6' white oak stakes driven at least 2" into the ground.

Spacing: Plant trees and shrubs using naturalized plant spacing. Do not plant in evenly spaced rows. Follow spacing requirements identified in the planting schedule.



- Forest Planting
- Urban Tree Canopy
- Conservation Landscaping
- Adjacent Site
- Access Route

Planting Notes:
 Plant around the existing trees on site. Provide maintenance for existing trees, including vegetation control and removing stakes and guys. Do not plant within 10' of water line or pavement and within 20' of ball fields.

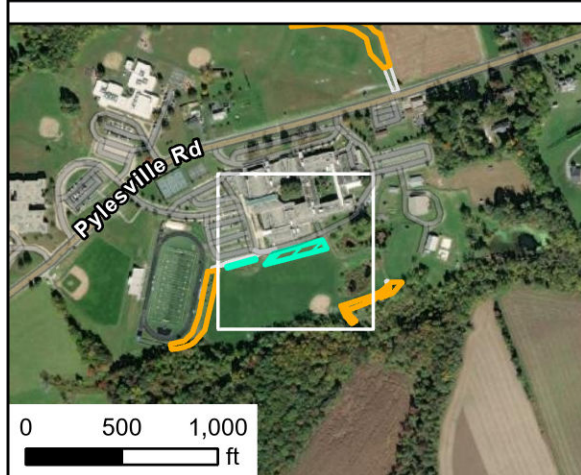
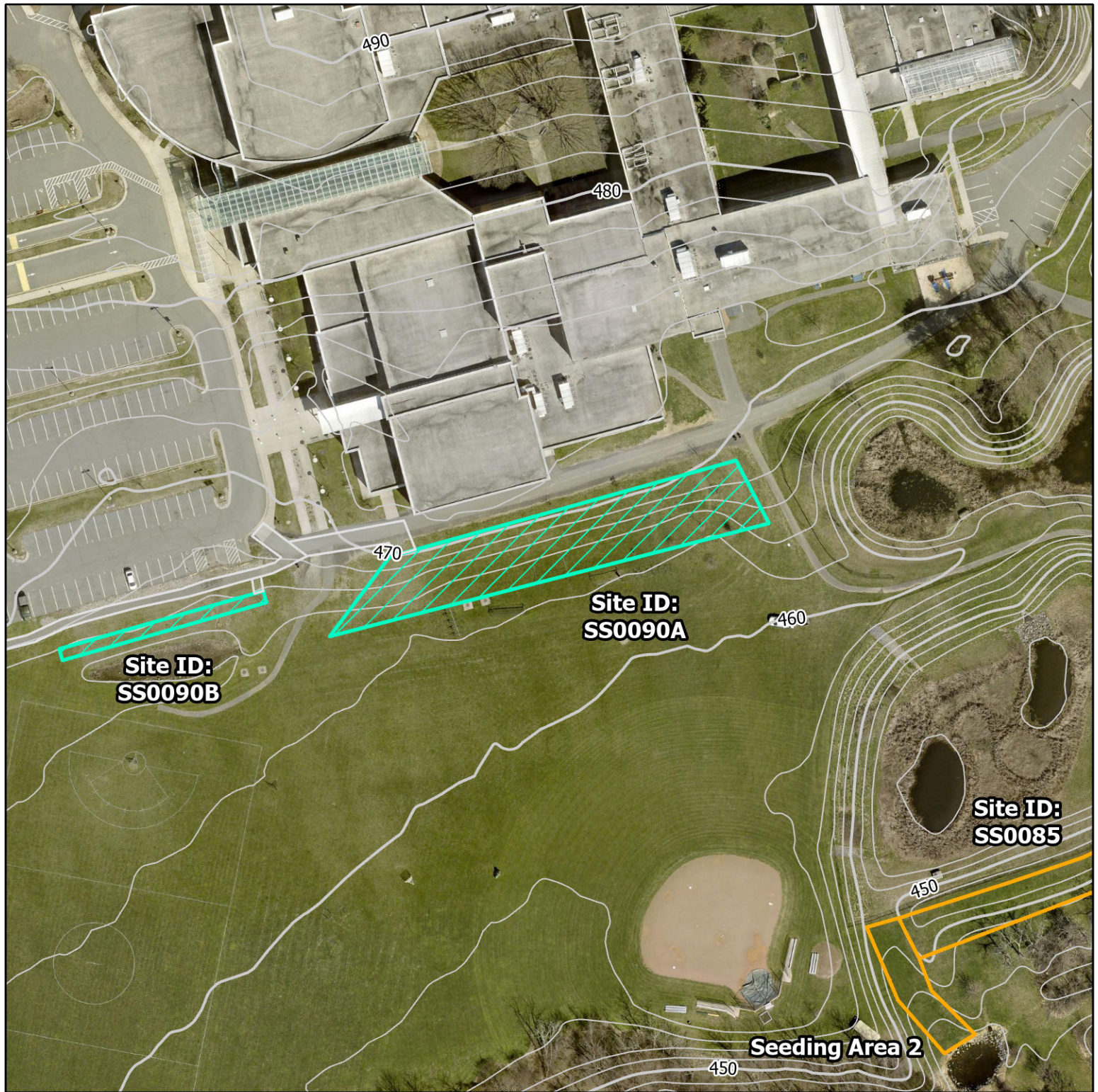
North Harford High School Site ID: SS0080 211 Pylesville Rd, Pylesville, MD 21132	
<div style="display: flex; align-items: center; justify-content: center;"> <div style="flex: 1;"> <div style="display: flex; justify-content: space-between; font-weight: bold;">0 50 100 200</div> <div style="border-top: 2px solid black; height: 10px; margin: 2px 0;"></div> <div style="display: flex; justify-content: space-between; font-size: small;">ft in</div> </div> <div style="margin-left: 10px;"> <div style="text-align: center;">N</div> <div style="font-size: 2em;">↑</div> </div> </div> <p>1 inch = 100 feet</p>	
August 2022	

NORTH HARFORD HS FOREST PLANTING - PLANTING SCHEDULE

SS0080								
Acreage	0.52	Proposed Trees/Acre		150				
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Size at Maturity	Placement
TREES								
8	<i>Liriodendron tulipifera</i>	Tulip poplar	FACU	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
12	<i>Tilia americana</i>	Basswood	FACU	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
12	<i>Quercus velutina</i>	Black oak	UPL	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
8	<i>Quercus alba</i>	White oak	UPL	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
8	<i>Ostrya virginiana</i>	Hophornbeam	FACU	1" caliper	#7 Container	Single stem	Medium tree	Approx 15' O.C
12	<i>Ilex opaca</i>	American holly	FACU	6' height	#5 Container	Single stem	Medium tree	Approx 15' O.C
8	<i>Cornus florida</i> 'Appalachian Spring'	Flowering dogwood 'Appalachian Spring'	FACU	6' height	#5 Container	Single stem	Small tree	Approx 12' O.C
12	<i>Cercis canadensis</i>	Redbud	FACU	6' height	#5 Container	Single stem	Small tree	Approx 12' O.C
80	=total							
Shrubs								
Proposed Shrubs/Acre		50						
9	<i>Viburnum acerifolium</i>	Mapleleaf viburnum	UPL	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
9	<i>Kalmia latifolia</i>	Mountain laurel	FACU	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
9	<i>Hamamelis virginiana</i>	Witch hazel	FACU	3' height	#5 Container	Multi stem	Shrub	Approx 10' O.C
27	=total							

Deer Protection: All 1" caliper trees shall receive 4' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground. All 6' height trees shall receive 5' tall, 30" diameter welded wire cages secured using 6 zip ties to three 1"x1"x6' white oak stakes driven at least 2" into the ground.

Spacing: Plant trees and shrubs using naturalized plant spacing. Do not plant in evenly spaced rows. Do not plant within 10' of water line or pavement and within 20' of ball fields. Where planting set backs apply, plant smaller trees along the perimeter and gradually increase canopy size further back. Follow spacing requirements outlined in the planting schedule.



-  Forest Planting
-  Urban Tree Canopy
-  Conservation Landscaping
-  Adjacent Site
-  Access Route

Planting Notes:
 Plant around the existing trees on site. Provide maintenance for existing trees, including vegetation control and removing stakes and guys. Do not plant within 10' of pavement.

North Harford High School
Site ID: SS0090A & SS0090B
 211 Pylesville Rd, Pylesville, MD 21132

0


50

100

200

ft

N



1 inch = 100 feet

August 2022





NORTH HARFORD HS URBAN TREE CANOPY - PLANTING SCHEDULE

SS0090A								
Acreage	0.33	Proposed Trees/Acre		150				
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Size at Maturity	Placement
	TREES							
7	<i>Tilia americana</i>	American basswood	FACU	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
7	<i>Quercus velutina</i>	Black oak	UPL	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
7	<i>Quercus alba</i>	White oak	UPL	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C
5	<i>Ostrya virginiana</i>	Hophornbeam	FACU	1" caliper	#7 Container	Single stem	Medium tree	Approx 15' O.C
7	<i>Ilex opaca</i>	American holly	FACU	6' height	#5 Container	Single stem	Medium tree	Approx 15' O.C
7	<i>Cornus florida</i> 'Appalachian Spring'	Flowering dogwood 'Appalachian Spring'	FACU	6' height	#5 Container	Single stem	Small tree	Approx 12' O.C
7	<i>Cercis canadensis</i>	Redbud	FACU	6' height	#5 Container	Single stem	Small tree	Approx 12' O.C
47	=total							

Deer Protection: All 1" caliper trees shall receive 4' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground. All 6' height trees shall receive 5' tall, 30" diameter welded wire cages secured using 6 zip ties to three 1"x1"x6' white oak stakes driven at least 2" into the ground.

Spacing: Plant trees using naturalized plant spacing. Do not plant in evenly spaced rows. Do not plant within 10' of pavement. Where planting set backs apply, plant smaller trees along the perimeter and gradually increase canopy size further back. Follow spacing requirements outlined in the planting schedule.

SS0090B								
Acreage	-	Proposed Trees/Acre		-				
Species Quantity	Species Name	Common Name	Wetland Indicator Status	Min. Size	Min. Container Size	Form	Size at Maturity	Placement
	TREES							
8	<i>Platanus occidentalis</i>	American sycamore	FACW	1" caliper	#7 Container	Single stem	Large tree	Approx 18' O.C

Deer Protection: All 1" caliper trees shall receive 4' tall, 4" diameter rigid HDPE black mesh tree shelters, secured with 3 zip ties to a 1"x1"x6' white oak stake driven at least 2' into the ground.

Spacing: Plant trees in a single row, spaced approximatley 18' on center. Do not plant within 10' of pavement.

November 2, 2022

Ms. Christine Buckley
Program Manager
Harford County Department of Public Works
Watershed Protection and Restoration Office
212 South Bond Street, 1st Floor
Bel Air, Maryland 21014

Re: Lower Wheel Creek Stream Restoration Repairs
Contract No. 21-097 – Water Resources Design and Assessment

Dear Ms. Buckley:

BayLand Consultants & Designers, Inc. (BayLand) is pleased to submit our proposal to provide design, permitting and construction document preparation for the Lower Wheel Creek Stream Restoration Repairs Project.

We appreciate the opportunity to submit this proposal and look forward to working with you on this important Harford County project. Please do not hesitate to contact me if you have any questions.

Sincerely,



Sean Crawford, PE
Practice Leader

Enclosures: Proposal
Project Schedule
Project Budget

SC/CSp/ks

O:\Proposal\2022\187_Wheel Creek Repairs\Wheel Creek Repairs Proposal Letter-rev.docx

**LOWER WHEEL CREEK STREAM RESTORATION REPAIRS
CONTRACT NO. 21-097**

PROPOSAL – NOVEMBER 2, 2022

Background

The Harford County National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permit requires the County to achieve nutrient and sediment reductions to help meet Total Maximum Daily Loads (TMDL) established for the waters within the Chesapeake Bay watershed. To meet the requirements of the NPDES MS4 permit, Harford County Department of Public Works (DPW) Watershed Protection and Restoration restored portions of Lower Wheel Creek. The portion of the project to be assessed and repaired is the approximately 2,700 linear foot (LF) reach located downstream from Wheel Road.

Construction was completed in 2017 for the Lower Wheel Creek Stream Restoration Project and since that time several locations have experienced instabilities that limit the MS4 credit that the County can utilize to meet the requirements of their NPDES permit. DPW has now requested that BayLand Consultants & Designers, Inc. (BayLand) assess the site and complete the design and permitting required for spot repairs that would allow the County to utilize the entire site for MS4 credit.

Scope of Work

The scope includes field and office activities needed to complete assessment, update hydrologic and hydraulic (H&H) models, design spot repairs, prepare construction documents, and obtain all required permits to stabilize the previously restored portions of Lower Wheel Creek that are currently unstable. The scope of work includes the following specific tasks:

Task 1 – Field Reconnaissance & Concept Design

- Obtain as-built CAD files and any available monitoring information for the project site from DPW and review.
- Conduct a site visit to visually assess and document the current conditions and level of departure from the as-built plans.
- Obtain stream gage and rainfall data from DPW and review.
- Update hydrologic model utilizing current rainfall data and calibrate with current Fixed Region Regression Equations, gage data and rainfall data.
- Update existing conditions hydraulic model with updated hydrologic calculations using additional cross section resolution as needed and calibrate using stream gage data.
- Prepare concept design plans that show the locations and approach for each proposed spot repair. Concept repair plans will consist of marked up as-built plans indicating the location and approximate extents of each spot repair and concept details for each proposed repair method.
- Prepare brief concept report documenting the work completed under Task 1 including updated H&H calculations and proposed repair methodologies.
- Submit concept report and design plan to the County Contract Manager and Project Manager (CM/PM) for review and comment.

Note: It is assumed that the previously completed comprehensive Wheel Creek restoration assessment report can be referenced for permitting as needed.

Task 2 – Topographic Survey & Field Investigations

- Review previously completed wetland delineation. Identify and flag any changes to the wetland boundaries within 25 feet of the proposed spot repair areas for inclusion within the topographic survey.
- Prepare wetland delineation map, data sheets and report, if necessary.
- Locate, identify and assess the condition of all trees larger than 24 inches in diameter within 25 feet of the proposed spot repair areas.
- Set recoverable horizontal and vertical control for the project to be used for the site survey and design.
- Perform a limited topographic survey of the spot repair areas including deviations from the as-builts plans, key elevations and tie-out points.
- Combine field run survey data with as-built survey to develop base maps for design.

Task 3 – Preliminary Design

- Address County comments from the Concept Design review and incorporate into the Preliminary Design.
- Prepare preliminary design plans that show the locations and approach for each proposed spot repair. Repair plans will consist of marked up as-built plans indicating the location and approximate extents of each spot repair, and construction details for each proposed repair method.
- Update the proposed hydraulic model to calculate stream shear stress and determine any impacts to the 100-year floodplain.
- Prepare an erosion and sediment control (ESC) plan and sequence of construction. It is assumed that construction access will be the same that was used for the initial construction.
- Prepare landscaping and buffer management computations and plans as needed.
- Prepare Forest Conservation Plan (FCP) if needed.
- Update the design report to include the proposed condition hydraulic model and additional and/or revised wetlands, if necessary.
- Submit preliminary design plans and design report to the County CM/PM for review and comment.
- Meet with the County CM/PM if necessary to review the preliminary design documents.

Note: It is assumed that the County's on-call contractor will complete the work and that the project will not be bid for construction, therefore, neither construction specifications nor construction cost estimates will be included.

Task 4 – Local, State and Federal Permitting

- Prepare Forest Stand Delineation (FSD) in accordance with County guidelines, if necessary.
- Revise Joint Permit Application previously completed by others, including updated impact plates and/or design plans and submit to the Maryland Department of the Environment (MDE). Address MDE comments and obtain an MDE permit.

- Contact the U.S. Army Corps of Engineers (USACE) and submit revised design approach. Address any comments and obtain a modified authorization from USACE.
- Submit ESC and FCP plans for local permitting.
- Address all local permitting comments including ESC and FCP comments.

Task 5 – Final Design

- Address County CM/PM comments from the preliminary design review.
- Incorporate any changes to the design plans as required to address comments received during the permitting phase.
- Prepare, submit, and obtain a National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Associated with Construction Activity if the disturbed area is greater than one acre.
- Prepare original mylar 100% plans and 100% design report, signed and sealed by a professional engineer.
- Submit 100% design plans, report and comment response documents in specified file types to the County CM/PM.

Schedule

This project will be executed in general accordance with the attached project schedule.

Fee

The cost of the proposed work will be based upon actual cost plus a fixed fee, in general accordance with the attached budget but not to exceed \$47,594.00.



Lower Wheel Creek Stream Restoration Repairs Project Schedule



Task	Task Name	Months	Start	Finish	Dec '22	Jan '23	Feb '23	Mar '23	Apr '23	May '23	Jun '23	Jul '23	Aug '23	Sep '23	Oct '23
	Lower Wheel Creek Repairs	11 Months	12/1/2022	10/31/2023											
	Notice to Proceed	1 Day	12/1/2022	12/1/2022	▶ Notice to Proceed										
T-1	Field Reconnaissance & Concept Design	1 Month	12/1/2022	12/31/2022	■ T-1										
	County Concept Review	1 Month	1/1/2023	1/31/2023	■ County Concept Review										
T-2	Topographic Survey & Field Investigations	1 Month	2/1/2023	2/28/2023	■ T-2										
T-3	Preliminary Design	2 Months	3/1/2023	4/30/2023	■ T-3										
	Preliminary Design - County Review	1 Month	5/1/2023	5/31/2023	■ Preliminary Design - County Review										
T-4	Local, State & Federal Permitting	5 Months	5/1/2023	9/30/2023	■ T-4										
T-5	Final Design	1 Month	10/1/2023	10/31/2023	■ T-5										

Project: Lower Wheel
Date: 11/2/2022

Task



Milestone



Project Summary



Split



Summary



External Tasks



HARFORD COUNTY CONTRACT #21-097
OPEN-END ENGINEERING CONTRACT FOR WATER RESOURCES
LOWER WHEEL CREEK STREAM RESTORATION REPAIRS

PROJECT BUDGET - NOVEMBER 2, 2022

<u>TASK</u>	<u>TITLE</u>	<u>HOURS*</u>	<u>RATE</u> <u>INCL O&P</u>	<u>TASK COST*</u> <u>INCL O&P</u>
1. Field Reconnaissance & 10% Concept Design	PROJECT MANAGER	4	\$160.00	\$640.00
	SENIOR WATER RESOURCES ENGINEER	12	\$135.00	\$1,620.00
	WATER RESOURCES ENGINEER	56	\$75.00	\$4,200.00
	SENIOR CIVIL ENGINEER	24	\$90.00	\$2,160.00
	SENIOR NATURAL RESOURCES SPECIALIST		\$100.00	\$0.00
	NATURAL RESOURCE SPECIALIST		\$60.00	\$0.00
	CADD TECHNICIAN		\$60.00	\$0.00
	2-MAN SURVEY CREW		\$130.00	\$0.00
	CLERICAL	4	\$60.00	\$240.00
		100		\$8,860.00
2. Topographic Survey & Field Investigations	PROJECT MANAGER	2	\$160.00	\$320.00
	SENIOR WATER RESOURCES ENGINEER	4	\$135.00	\$540.00
	WATER RESOURCES ENGINEER	32	\$75.00	\$2,400.00
	SENIOR CIVIL ENGINEER		\$90.00	\$0.00
	SENIOR NATURAL RESOURCES SPECIAL	12	\$100.00	\$1,200.00
	NATURAL RESOURCE SPECIALIST	16	\$60.00	\$960.00
	CADD TECHNICIAN	34	\$60.00	\$2,040.00
	2-MAN SURVEY CREW	24	\$130.00	\$3,120.00
	CLERICAL	2	\$60.00	\$120.00
		126		\$10,700.00
3. Preliminary Design	PROJECT MANAGER	8	\$160.00	\$1,280.00
	SENIOR WATER RESOURCES ENGINEER	16	\$135.00	\$2,160.00
	WATER RESOURCES ENGINEER	60	\$75.00	\$4,500.00
	SENIOR CIVIL ENGINEER	36	\$90.00	\$3,240.00
	SENIOR NATURAL RESOURCES SPECIAL	16	\$100.00	\$1,600.00
	NATURAL RESOURCE SPECIALIST	16	\$60.00	\$960.00
	CADD TECHNICIAN		\$60.00	\$0.00
	2-MAN SURVEY CREW		\$130.00	\$0.00
	CLERICAL		\$60.00	\$0.00
		152		\$13,740.00
4. Local, State and Federal Permitting	PROJECT MANAGER	2	\$160.00	\$320.00
	SENIOR WATER RESOURCES ENGINEER	8	\$135.00	\$1,080.00
	WATER RESOURCES ENGINEER	40	\$75.00	\$3,000.00
	SENIOR CIVIL ENGINEER		\$90.00	\$0.00
	SENIOR NATURAL RESOURCES SPECIAL	24	\$100.00	\$2,400.00
	NATURAL RESOURCE SPECIALIST	32	\$60.00	\$1,920.00
	CADD TECHNICIAN		\$60.00	\$0.00
	2-MAN SURVEY CREW		\$130.00	\$0.00
	CLERICAL	8	\$60.00	\$480.00
		114		\$9,200.00

<u>TASK</u>	<u>TITLE</u>	<u>HOURS*</u>	<u>RATE</u>	<u>TASK COST*</u>
			<u>INCL O&P</u>	<u>INCL O&P</u>
5. Final Design	PROJECT MANAGER	2	\$160.00	\$320.00
	SENIOR WATER RESOURCES ENGINEE	4	\$135.00	\$540.00
	WATER RESOURCES ENGINEER	16	\$75.00	\$1,200.00
	SENIOR CIVIL ENGINEER	8	\$90.00	\$720.00
	SENIOR NATURAL RESOURCES SPECIALIST		\$100.00	\$0.00
	NATURAL RESOURCE SPECIALIST		\$60.00	\$0.00
	CADD TECHNICIAN		\$60.00	\$0.00
	2-MAN SURVEY CREW		\$130.00	\$0.00
	CLERICAL	2	\$60.00	\$120.00
		32		\$2,900.00
	<u>LABOR SUMMARY</u>			
	PROJECT MANAGER	18	\$160.00	\$2,880.00
	SENIOR WATER RESOURCES ENGINEE	44	\$135.00	\$5,940.00
	WATER RESOURCES ENGINEER	204	\$75.00	\$15,300.00
	SENIOR CIVIL ENGINEER	68	\$90.00	\$6,120.00
	SENIOR NATURAL RESOURCES SPECIAL	52	\$100.00	\$5,200.00
	NATURAL RESOURCE SPECIALIST	64	\$60.00	\$3,840.00
	CADD TECHNICIAN	34	\$60.00	\$2,040.00
	2-MAN SURVEY CREW	24	\$130.00	\$3,120.00
	CLERICAL	16	\$60.00	\$960.00
		524		
LABOR, OVERHEAD & PROFIT				\$45,400.00
<u>EXPENSES</u>				
CAD/GIS			\$1,344.00	
TRAVEL			\$350.00	
EQUIPMENT RENTAL			\$500.00	
EXPENSES TOTAL			\$2,194.00	\$2,194.00
PROJECT TOTAL				\$47,594.00

*NOTE: ACTUAL TASK COSTS AND HOURS BY EMPLOYEE MAY VARY FROM PROPOSED BUDGET. PROJECT TOTAL WILL NOT BE EXCEEDED.

2021 REPAIR WORK IMPACTS
LIMIT OF DISTURBANCE: 15,440 SF/0.35 AC
TEMPORARY STREAM IMPACT: 6,000 SF/0.14 AC / 400 LF
TEMPORARY FLOODPLAIN IMPACT: 9,440 SF/0.22 AC
ESTIMATED CUT/FILL: 63 CY (FILL) - 87 CY (CUT) NET - 24 CY (CUT)

TO THE BEST OF MY KNOWLEDGE, THE AS-BUILT LOCATION
INFORMATION SHOWN HEREON IS TRUE AND ACCURATE.

Jeffrey Adam McDonald 21322
JEFFREY ADAM McDONALD 06-09-2015 REG. NO.

NOTE: A LICENSED PROFESSIONAL LAND SURVEYOR EITHER
PERSONALLY PREPARED OR WAS IN RESPONSIBLE CHARGE OVER THE
PREPARATION OF THIS DRAWING AND THE SURVEYING WORK REFLECTED
IN IT, ALL IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN
REGULATION 12 OF THE MINIMUM STANDARDS OF PRACTICE.

PROFESSIONAL LICENSE EXPIRATION DATE 01-07-2017.

NOTE:
THE FIELD WORK FOR THIS STREAM
AS-BUILT WAS PERFORMED ON
JANUARY 13, 2015.



LEGEND	
WATERS OF THE US	WUS
NONTIDAL WETLAND	
25' NONTIDAL WETLAND BUFFER	WB
TREE LINE	
EX. MAJOR CONTOUR	65
EX. MINOR CONTOUR	
PROPOSED CONTOUR	80
PROPERTY LINE	
EX. BUILDINGS	
EX. TREE	
EX. BUSH	
EX. FENCE	
PROP. 100-YEAR FLOODPLAIN	
EX. 100-YEAR FLOODPLAIN	
RIFFLE GRADE CONTROL	
STONE SILL	
STONE TOE PROTECTION	
TREE PROTECTION	TP
LIMIT OF DISTURBANCE	LOD
OVERHEAD UTILITY WIRE	OH
LIVE BRANCH LAYERING	

WATER LINE IS TO BE PROTECTED DURING
ALL CONSTRUCTION ACTIVITIES AND RESET
APPROXIMATELY 1' BELOW NEW CHANNEL
ELEVATION

CONTRACTOR TO BE AWARE
OF OVERHEAD WIRES

REMOVE EX.
CONCRETE
FROM BANK

REMOVE EX. CONCRETE
FROM CHANNEL

STONE SILL
SEE SHEET 8
FOR DETAILS

SHAPE BANK PROTECTION TO
CONFORM TO EXISTING DRAINAGE

STONE SILL
SEE SHEET 8
FOR DETAILS

CREATE FLOODPLAIN BENCH ON
RIGHT BANK

REPLACE FAILED STONE SILL WITH
STONE CROSS VANE

INSTALL STONE TOE BANK
PROTECTION (APPROX. 30')

INSTALL IMBRICATED WALL
TO STABILIZE EXISTING BANK
AND EXISTING FOOT BRIDGE

STONE SILL SCHEDULE	
FROM STA.	ELEV.
8+87	68.6
11+90	63.7

LIVE BRANCH LAYERING SCHEDULE				
FROM STA.	ELEV.	TO STA.	ELEV.	LOCATION*
6+10	74.8	6+50	73.8	L
7+25	72.4	8+00	71.0	R

*LOCATION IS SIDE OF BANK
FACING DOWNSTREAM

RIFFLE GRADE CONTROL SCHEDULE			
FROM STA.	ELEV.	TO STA.	ELEV.
6+50	72.3	6+80	71.7
8+00	70.0	8+18	69.7
8+89	68.6	9+14	68.0

STONE TOE PROTECTION SCHEDULE				
FROM STA.	ELEV.	FROM STA.	ELEV.	LOCATION*
6+10	74.5	6+80	73.2	L
7+25	72.4	8+20	71.2	R

*LOCATION IS SIDE OF BANK
FACING DOWNSTREAM

CASCADE CREST SCHEDULE	
STATION	
8+18	
8+26	
8+34	
8+42	
8+50	

PLAN# 59877
GRADING PERMIT # GRA-21717-2021



WOODBIDGE STREAM
RESTORATION - REPAIR

PROJECT No.: 21-15-0003

DATE: 1/7/2022

SHEET 1 OF 3

EAC Approved 6/19/15

PS02 OF 02

2/2/13 Note reference

DATE REVISION BY

DRAWING COMPLETED

SCALE TAX MAP SHEET J.O.

1" = 20' POSITION SHEET NO. 5 FILES

OF 31

120607

5/10/2022

5/10/2022

5/10/2022

HARFORD COUNTY
MARYLAND

GRADING PLAN

WOODBIDGE STREAM RESTORATION

150638

120926



DESIGNED KLH/AMP

TRACED JMS

CHECKED MDT



PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE
OF MARYLAND, LICENSE NO. 38311
EXPIRATION DATE: 1-6-2014

PLOTTED: 08/19 AM on Tuesday, May 08, 2012
BY: Ashley Pinner, Division P050, Natural Resources
FILE: W:\2008\0108\734\01\6\grd\grd01wood.dgn

HARFORD COUNTY
MARYLAND

PROFILE SHEET

WOODBIDGE STREAM RESTORATION

LEGEND
EXISTING GROUND
PROPOSED GRADE
ALONG BASELINE
POOL THALWEG
STONE TOE PROTECTION

ecotone
ecological restoration
150 PROJECT LANE • FORT LEE, MARYLAND 21050
(410) 455-2800 • WWW.ECOTONE.COM

**WOODBIDGE STREAM
RESTORATION - REPAIR**
PROJECT NO.: 21-15-0003
DATE: 1/7/2022
SHEET 2 OF 3

WBCM
ARCHITECTURE ENGINEERING CONSULTANTS
150639

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND
THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE
OF MARYLAND, LICENSE NO. 38311
EXPIRATION DATE: 1-6-2014

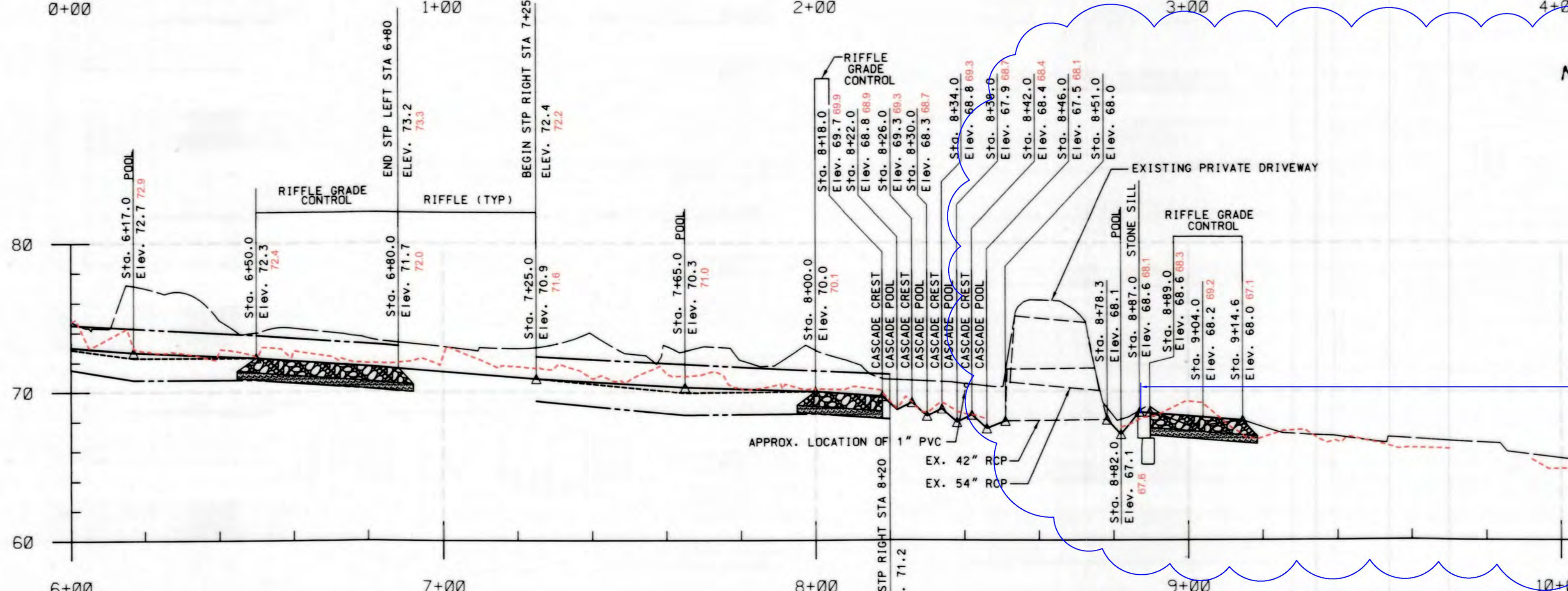
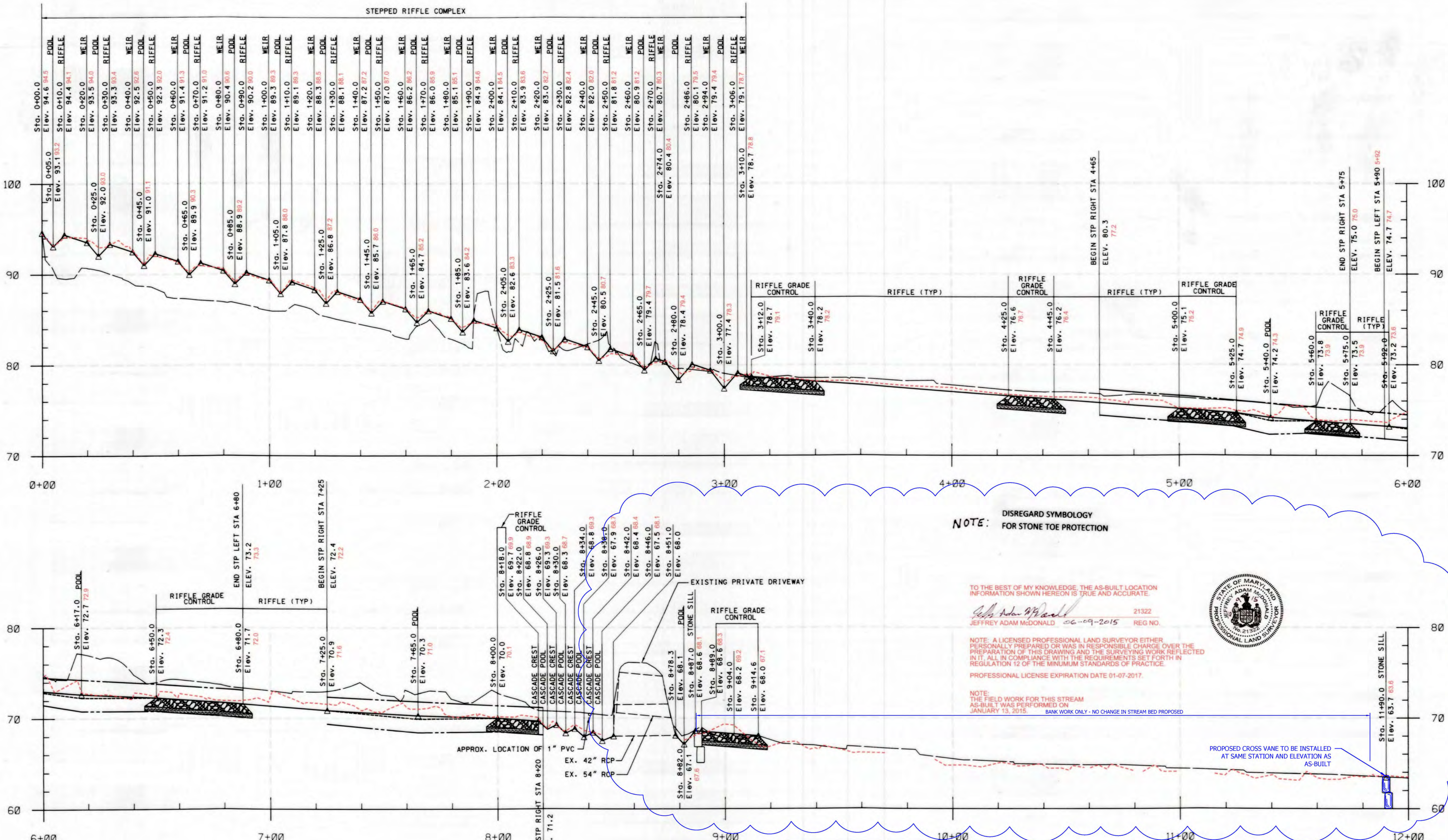
ENGINEER'S SEAL
STATE OF MARYLAND
JAMES H. WHELAN
PROFESSIONAL ENGINEER
No. 38311
5/8/12

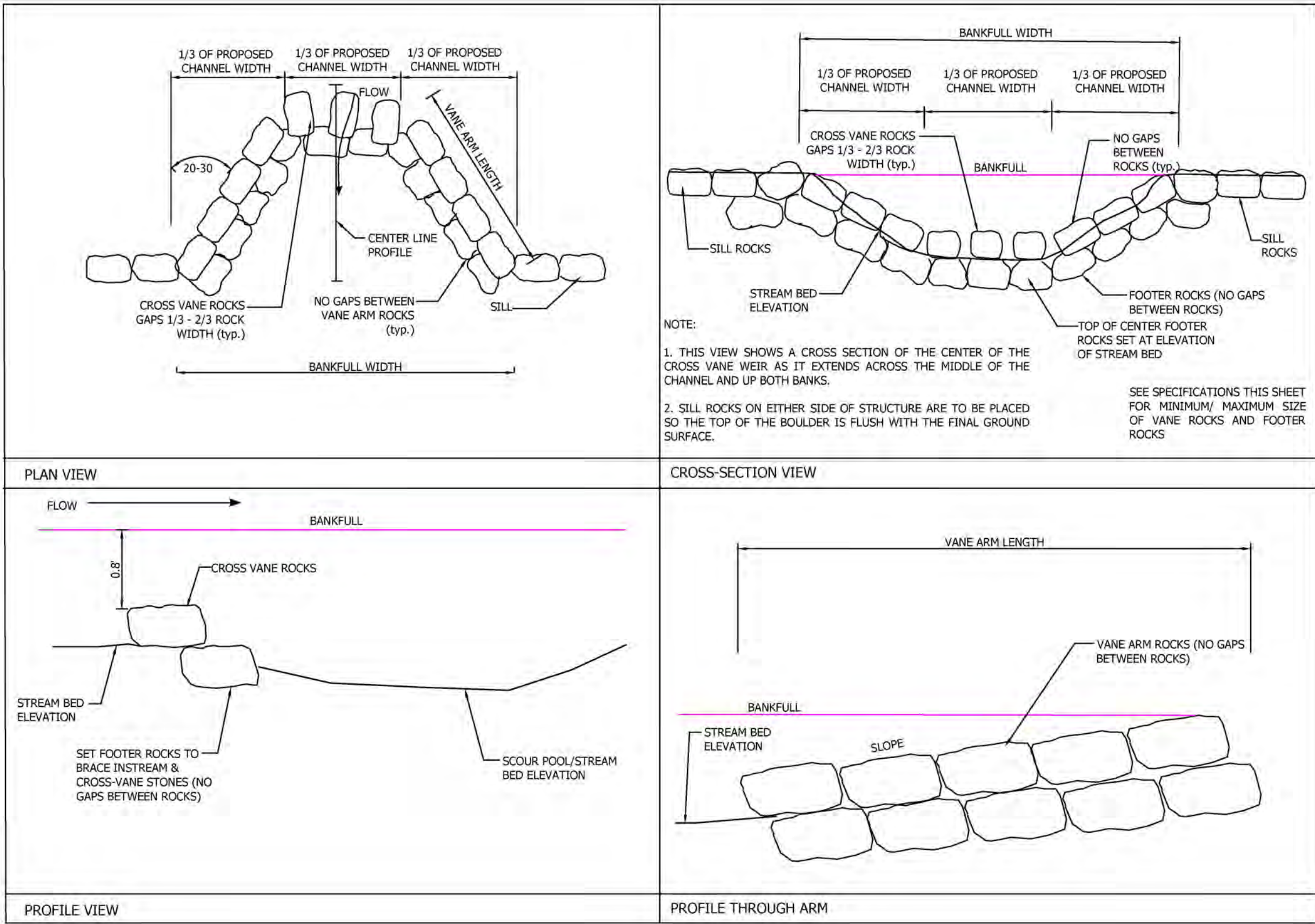
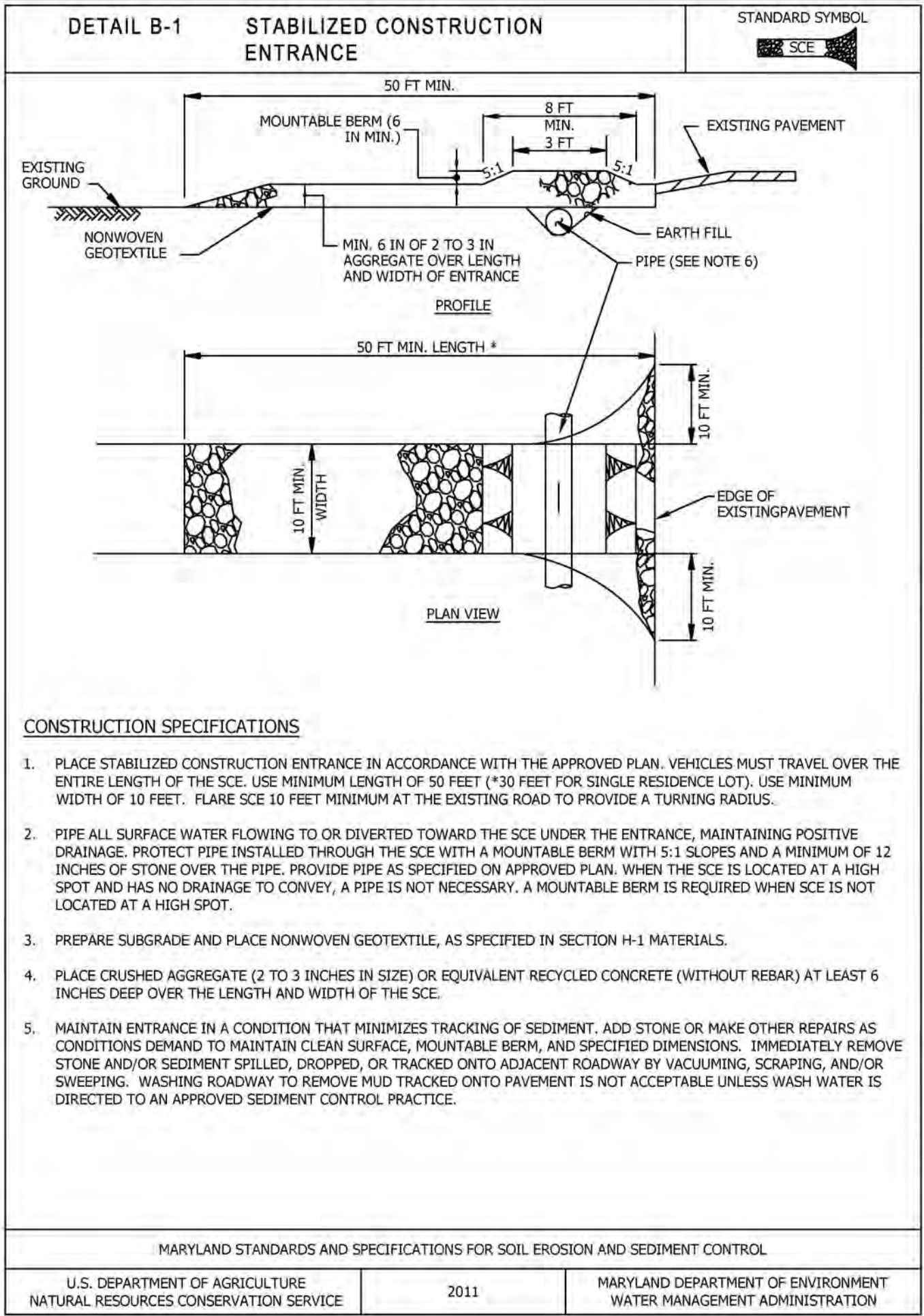
EAC Approved 6/19/15
PLAN# 59877
GRADING PERMIT # GRA-21717-2021

DATE	3/7/13	REVISION	By
DRAWING COMPLETED			

DESIGNED	KLH/AMP	SCALE	TAX MAP	SHEET	J.O.
TRACED	JMS	HOR. 1" = 20' VERT. 1" = 5'	POSITION SHEET	NO. 9	FILES
CHECKED	MDT			OF 31	

S/C PLAN #59772





PUMP-AROUND PRACTICE

DESCRIPTION

The work shall consist of installing a temporary pump and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

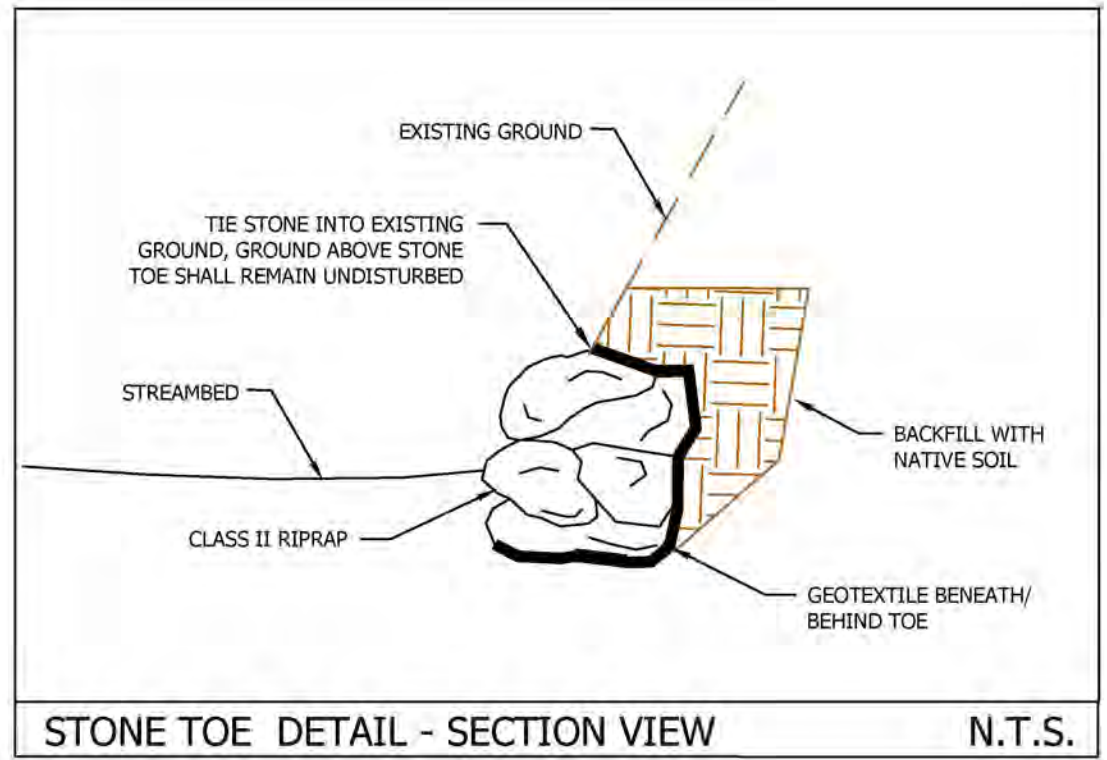
Sediment control measures, pump-around practices, and associated channel and bank construction shall be completed in the following sequence (refer to Detail 1.2):

- Construction activities including the installation of erosion and sediment control measures shall not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities shall be marked in the field prior to construction. The contractor will be responsible for any damage to existing utilities that may result from construction and shall repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor shall notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor shall inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor shall conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review the limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor shall stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees shall not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction shall not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor shall begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor shall only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump-around removed from the channel. Work shall not be conducted in the channel during rain events.
- Sandbag dikes shall be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipater of riprap or sandbags.
- Water from the work area shall be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure shall be located such that the water drains back into the channel below the downstream sandbag dike.
- Reversing a channel reach with equipment within the work area where no work is proposed shall be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures shall be used to minimize disturbance to the channel. Temporary stream crossing shall be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures shall be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections.
- After an area is completed and stabilized, the clean water dike shall be removed. After the first sediment flush, a new clean water dike shall be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike shall be removed.
- A pump-around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This shall be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water shall discharge onto the same velocity dissipater used for the main stem pump-around.
- If a tributary is to be restored, construction shall take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump-around practices, shall follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem shall resume. Water from the tributary shall continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas shall be regraded and revegetated.

MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION

ROCK CROSSVANE INSTALLATION

- Construct the weir portion of the cross vane first. A trench perpendicular to the stream channel shall be excavated in the center of the channel extending approximately one third (1/3) of the proposed channel width (refer to detail), the exact length to be determined in the field. The trench shall be excavated to a depth which will accommodate footer boulders.
- Continue excavation of the trench progressively streamward, in conjunction with the placement of the footer and the weir boulders (boulders which are placed on top of the footers in the weir portion of the Cross Vane).
- The footer boulders shall be placed in the excavated trench such that they are touching one another.
- Weir boulders shall be placed on top of the footer boulders such that they are contiguous, staggered over the two (2) adjacent footer boulders, placed skewed upstream of the footer boulders, and placed so the top of boulder is at the proposed stream invert.
- Excavate a scour pool downstream of the Cross Vane. The grading plans show general pool locations: grade scour pool per field conditions.
- Cut a trench for one of the vanes of the Cross Vane, starting from the edge of the weir portion of the cross vane. The dimensions of the trench (width and depth) shall accommodate the dimensions of the boulders. The angle of the trench shall be twenty to thirty degrees off of the angle of the proposed streambank. The vane of the cross vane shall extend into the stream channel approximately one third (1/3) the channel width, with exact length to be determined in the field.
- Footer boulders shall be placed in the excavated trench such that they are touching one another. Additional footer boulders may be required for placement of the vane boulders at the required elevation. Footer boulders shall extend into existing ground a minimum depth of 0.50 feet.
- A vane boulder will be placed at an elevation indicated on the plans. The subsequent vane boulders shall be positioned toward the stream channel at 3 - 7 percent slope, until the vane extends to approximately one third (1/3) of the channel width, with exact length to be determined in the field (refer to detail).
- In fill areas, sill boulders shall extend a minimum 5 feet into undisturbed soil of both left and right banks.
- One boulders shall be placed on top of the footer boulders such that they are contiguous, staggered over the footer boulders, and placed skewed upstream of the footer boulders.



STONE TOE WITH SOIL LIFT INSTALLATION

DESCRIPTION

WORK SHALL CONSIST OF FURNISHING AND INSTALLING BOULDERS TO MINIMIZE NEAR BANK STRESS AND STABILIZE STREAMBANKS.

MATERIALS

STONE TOE

MATERIAL STONE SHALL CONSIST OF PURCHASED OR SALVAGED CLASS II RIPRAP. FILL VOIDS WITH PURCHASED OR SALVAGED CLASS I RIPRAP OR GABION STONE.

GEOTEXTILE

GEOTEXTILE MATERIAL SHALL CONSIST OF CLASS E GEOTEXTILE FABRIC.

SELECT TOPSOIL MATERIAL

SUBGRADE FILL MATERIAL SHALL CONSIST OF NATIVE SOIL AVAILABLE ONSITE. IF ADDITIONAL MATERIAL IS REQUIRED TO MEET PROPOSED GRADE, COMMON BORROW CONSISTING OF NO MORE THAN 2% ORGANIC MATERIAL WILL BE BROUGHT IN AND UTILIZED.

CONSTRUCTION

- GRADE STREAMBANK TO THE DESIRED SLOPE THEN EXCAVATE TRENCH ALONG THE TOE OF THE BANK FOR THE PLACEMENT OF FOOTER STONES. A LAYER OF GEOTEXTILE MATERIAL SHALL BE PLACED AND SECURED FROM THE TOP OF BANK DOWN INTO THE FOOTER TRENCH.
- PLACE FOOTER STONES ON TOP OF THE GEOTEXTILE IN THE TRENCH.
- ONCE A LAYER OF FOOTER STONE IS IN PLACE, PLACE EACH STONE OVERLAPPING THE PREVIOUS ONE. THE STONES THAT ARE PLACED ABOVE FOOTER STONES BUT BELOW BASE LEVEL SHOULD BE SET SO AS TO CREATE A VOID SPACE BETWEEN THE ADJACENT STONES.
- CONTINUE PLACEMENT OF STONE UNTIL DESIRED TOE HEIGHT IS ACHIEVED.
- THE TOP OF THE STREAMBANK WILL TRANSITION INTO THE TOE BY GRADING AT A 2:1 (MAX) SLOPE. EROSION CONTROL MATTING WILL BE PLACED OVER ANY GRADED AREA AND KEYED 0.5 FOOT BEHIND TOP OF STONE TOE.

EROSION & SEDIMENT CONTROL STANDARD PLAN NOTES

- Erosion and sediment control measures shall be installed prior to any earth disturbance except that necessary for installation of the controls.
- All erosion and sediment control practices shall be installed and maintained according to the criteria contained in the most current version of the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- All clearing and grading shall be completed in the following sequence:
 - Limit initial clearing and grubbing for the installation of the construction entrance, perimeter controls and any remaining controls.
 - Install stabilized construction entrance, perimeter silt fence and any other sediment controls.
 - Clear, grub and grade the remainder of the site as specified by the limits of disturbance shown on the attached detail.
 - Provide temporary stabilization of any area that will not be actively graded within seven (7) days.
 - Construct any structures and utilities.
 - Provide final grading and stabilization according to the seeding or sodding specifications (minimum stabilization by seeding and mulching).
 - After the site has been stabilized with adequate vegetation, and with the permission of the sediment control Inspector, remove sediment control practices and stabilize remaining disturbed areas.
- All erosion and sediment control devices require continual maintenance. Any controls that are damaged or disturbed shall be restored or repaired before the end of each day.
- Development activities shall not impair any drainage, create an erosion hazard or create a source of sediment to any adjacent watercourse, wetland or property.
- Any pumping of water must be filtered and done according to the criteria contained in the most current version of the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days on the surface areas of all sediment controls, stockpiles and perimeter slopes; seven (7) days for all other disturbed areas on the site not being actively graded.

HARFORD COUNTY SEDIMENT CONTROL NOTES

- The contractor/owner is responsible for obtaining all necessary permits. Further, no construction activity shall take place until all required permits have been obtained.
- The limits of disturbance shall be clearly delineated in the field prior to grading of the site to ensure compliance with approved plans. All Forest Retention areas will be delineated with Blaze Orange Fence as well as any SWM infiltration practice prior to any clearing. Work beyond the limits of disturbance and in any area inside the Forest Retention and SWM infiltration area is considered to be a violation of this plan.
- All sediment control practices must be installed prior to any construction activity. Upon completion of the installation of perimeter sediment control practices the site must be inspected by the Department of Public Works (DPW). No additional construction activity will be authorized without the approval from DPW.
- All points of ingress and egress shall be protected to prevent tracking of mud into public ways. During construction, every means will be taken to control soil erosion and siltation. If necessary a wash rack may need to be established.
- Earth dikes, sediment traps, etc. will be located as shown on these drawings. Field changes and minor adjustments are permissible as long as the installation functions and conforms to specifications. The site inspector prior to installation must approve all such changes. Major changes to the approved plan will require re-approval by the Harford Soil Conservation District.
- Following initial soil disturbance or re-disturbance permanent or temporary stabilization shall be completed within:
 - Three calendar days on slopes greater than 3:1, all waterways and to the surface of all perimeter controls.
 - Seven calendar days as to all other disturbed or graded areas of the project site.
- Dust control must be managed as part of all Sediment Control plans. Failure to do so is a violation of this plan.
- Sediment basins must be built to design specifications shown on the plan. If the basin is to be used as a future SWM facility, the basin will be built in accordance with the latest MD-378 standards and specifications. Specified materials must be used. No changes or modifications will be made without written authorization of the Harford Soil Conservation District.
- Temporary fencing shall be placed around all sediment basins, traps, and ponds during construction and site grading.
- At the end of each working day all sediment control practices will be inspected and left operational. A weekly log will be kept in accordance with NOI/NPDES regulations. A copy of the approved sediment control plans shall be available at the site at all times.
- Ensure positives drainage to all road inlets during all phases of road construction to ensure positive flow to traps and/or basins.
- Cut and/or fill shall be done in conformance with 2011 Erosion and Sediment Control Standards and Specifications for land grading.
- Surface flows over cut and fill slopes shall be controlled by either redirecting flows from traversing the slopes or by installing mechanical devices to safely convey water down slopes without causing erosion.
- Off-site waste or borrow areas shall have an approved erosion and sediment control plan prior to the import or export of material to/from the project site.
- All material originating from the development of the property and deposited on the public right-of-way shall be immediately removed.
- Storm drain inlets and outlets shall be protected per 2011 Erosion and Sediment Control standards and specifications.
- Topsoil, liming, fertilizing, seeding, mulching, sod, etc. are all essential parts of the sediment control plan and must be completed along with all other practices.
- Traps to be removed shall be dewatered as per the 2011 Erosion and Sediment Control standards and specifications.
- Prior removal of traps or conversion of sediment basins to SWM facilities, the storm drains will be flushed.
- Sediment control practices will be maintained until all disturbed areas for which the practices were installed have been stabilized. Sediment control practices may be removed only with the authorization of the DPW inspector. All disturbed areas resulting from the removal of sediment control devices shall be stabilized immediately. Removal prior to inspectors's approval constitutes a violation.

PLAN# 59877
GRADING PERMIT # GRA-21717-2021

WOODBIDGE STREAM RESTORATION - REPAIR

NOTES & DETAILS

HARFORD COUNTY, MARYLAND



ecotone
ecological restoration

129 Industry Lane • Forest Hill, Maryland 21050
(410) 420 2600 • www.ecotoneline.com

3 of 3

COORDINATE NOTE

PLAN IS IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

UTILITY NOTIFICATION

"Ecotone, Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities. It is suggested that Miss Utility be contacted at: 1-800-257-7777."

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY:

DESIGNED: CMK

DRAWN: CRH

PROJECT No.: 21-15-0003

DATE: 1/7/2022

SHEET:



Maryland Department of Environment
Water and Science Administration
Compliance Program
1800 Washington Blvd, Suite 420
Baltimore, MD 21230-1719
410- 537-3510

Inspector: Wendy Huang
AI ID: 134073

Site Name: Harford County DPW - Woodbridge Stream Restoration
Facility Address: 39.421307, -76.330073, South of Magnolia Road and Hanson Road, Edgewood, MD 21040
County: Harford County

Start Date/Time: October 19, 2022, 09:15 AM
End Date /Time: October 19, 2022, 09:45 AM

Media Type(s): Waterway Construction

Contact(s): NA

Waterway Construction

Permit / Approval Numbers: 21-NT-0500
Inspection Reason: Initial Quarterly, Routine Scheduled
Site Status: Complete
Compliance Status: Compliance
Recommended Action: Continue Routine Inspection
Evidence Collected: Visual Observation
Delivery Method: Email
Weather: Sunny and clear

Inspection Findings:

I conducted an unannounced inspection on this day for the above referenced waterway construction license. I conducted a site walk through alone. The license authorizes the permittee (Harford County) to:

Repair deficiencies in Woodbridge Stream. This project will temporarily impact 400 linear feet (6,000 square feet) of stream channel and 9,400 square feet of 100- year floodplain.

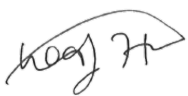
The following were observed during the time of this inspection:

- Concrete has been removed from the north side of the stream channel/ work area. Stone sills have been placed by the twin concrete pipes at the north side of the stream channel.
- Stones were observed on the slope of the stream bank under a wooden foot bridge.
- Stones have been placed at the toe of the stream bank at the southwest side of the site. Stone cross vane and floodplain bench were observed at the south side of the site. The stream bank at the southwest side of the site has been stabilized with jute matting and wooden stakes. Grass was observed to be growing on the jute matting.

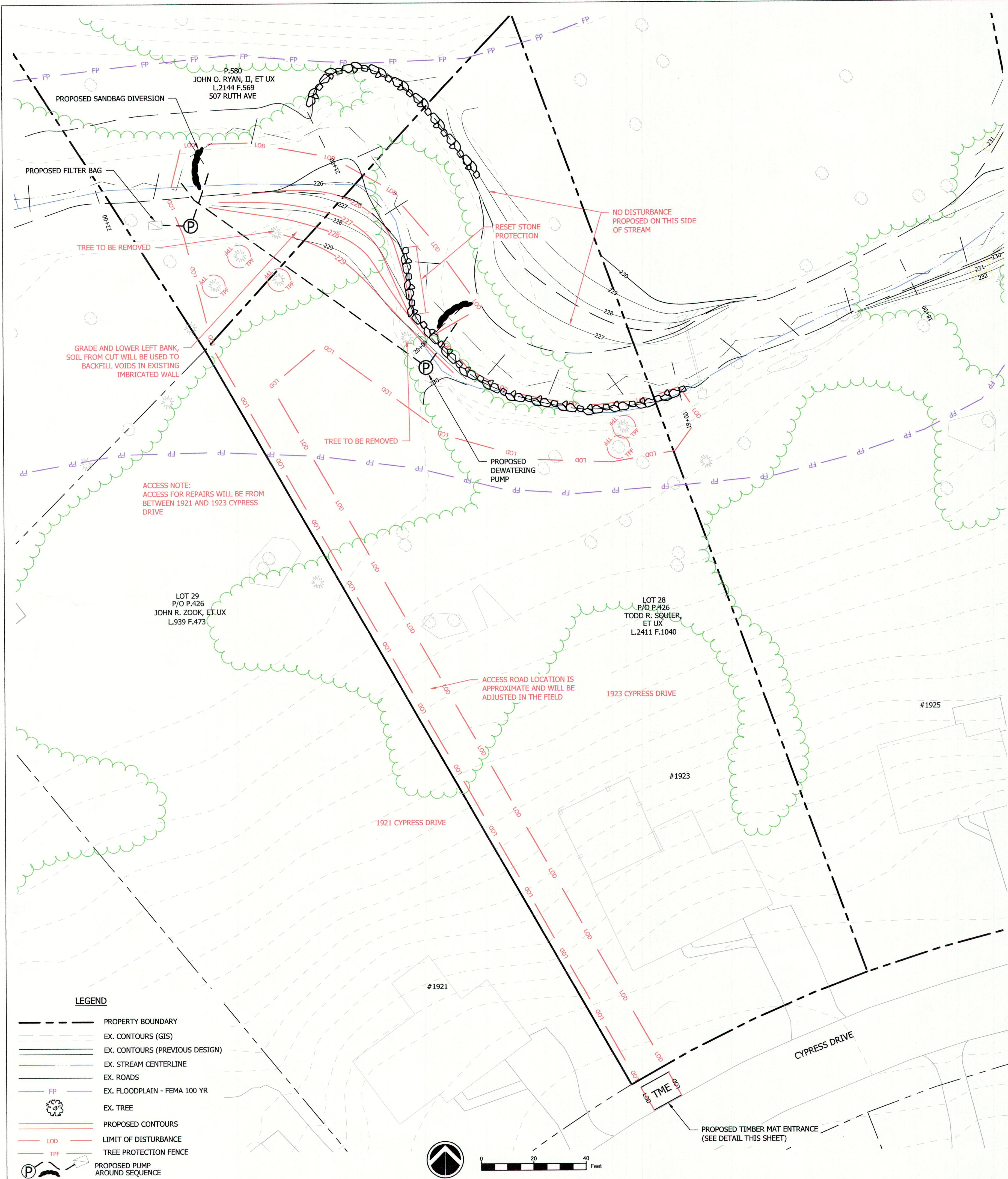
Inspection Date: October 19, 2022
Site Name: Harford County DPW - Woodbridge Stream Restoration
Facility Address: 39.421307, -76.330073, South of Magnolia Road and Hanson Road, Edgewood, MD 21040

- Stabilization matting was observed at the north side of the site, immediately west of the stream and approximately 65% vegetation ground cover was observed at this area. This area is a former location for equipment storage. Equipment was not observed on site.

Work looks to have been completed per the plan. This project will be closed when more than 95% vegetation ground cover at all formerly disturbed area at this site is achieved. Any questions regarding this report can be referred to Wendy Huang at wendy.huang@maryland.gov.

Inspector:		10/19/2022	Received by:	_____
	Wendy Huang /Date wendy.huang@maryland.gov 410-537-3526			Signature/Date

				Print Name

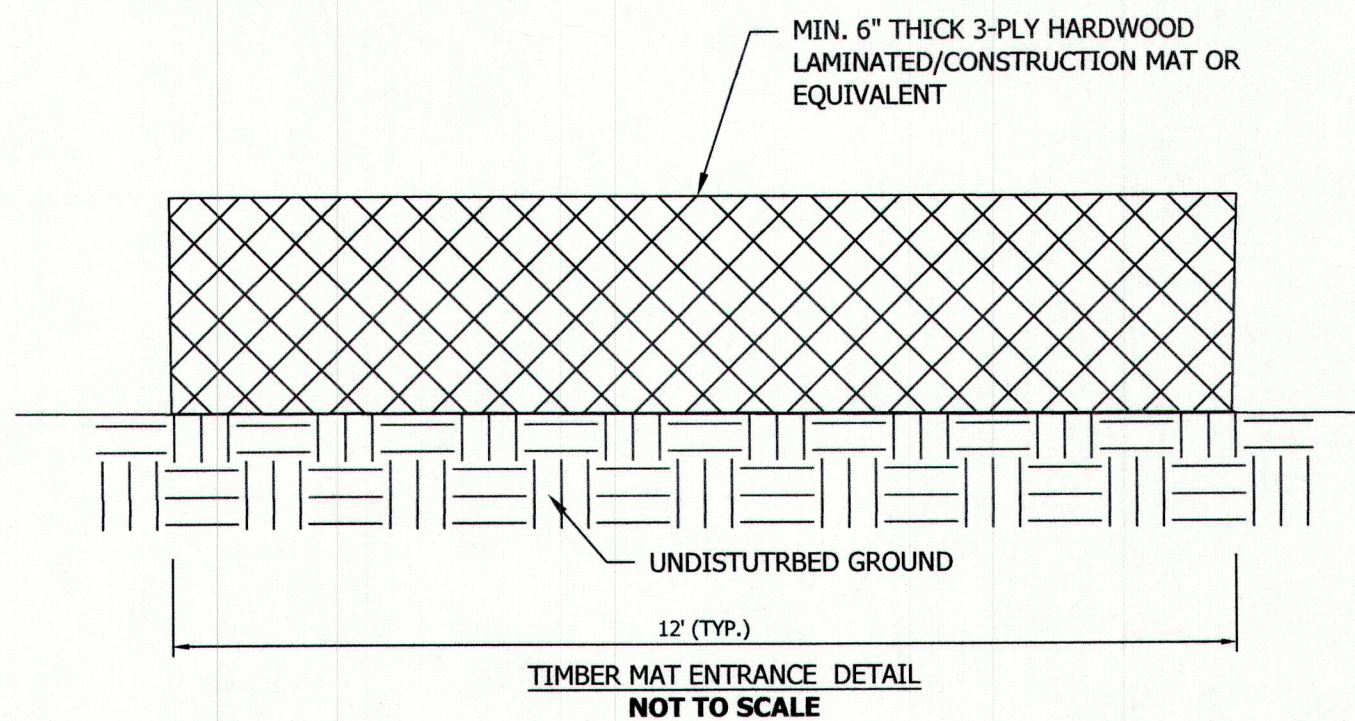


EROSION & SEDIMENT CONTROL STANDARD PLAN NOTES

- Erosion and sediment control measures shall be installed prior to any earth disturbance except that necessary for installation of the controls.
- All erosion and sediment control practices shall be installed and maintained according to the criteria contained in the most current version of the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- All clearing and grading shall be completed in the following sequence:
 - Limit initial clearing and grubbing for the installation of the construction entrance, perimeter controls and any remaining controls.
 - Install stabilized construction entrance, perimeter silt fence and any other sediment controls.
 - Clear, grub and grade the remainder of the site as specified by the limits of disturbance shown on the attached detail.
 - Provide temporary stabilization of any area that will not be actively graded within seven (7) days.
 - Construct any structures and utilities.
 - Provide final grading and stabilization according to the seeding or sodding specifications (minimum stabilization by seeding and mulching).
 - After the site has been stabilized with adequate vegetation, and with the permission of the sediment control inspector, remove sediment control practices and stabilize remaining disturbed areas.
- Topsoil shall be stockpiled within the limits of disturbance and the area down slope protected by an appropriate sediment control device.
- All erosion and sediment control devices require continual maintenance. Any controls that are damaged or disturbed shall be restored or repaired before the end of each day.
- Development activities shall not impair any drainage, create an erosion hazard or create a source of sediment to any adjacent watercourse, wetland or property.
- Any pumping of water must be filtered and done according to the criteria contained in the most current version of the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days on the surface areas of all sediment controls, stockpiles and perimeter slopes; seven (7) days for all other disturbed areas on the site not being actively graded.

HARFORD COUNTY SEDIMENT CONTROL NOTES

- The contractor/owner is responsible for obtaining all necessary permits. Further, no construction activity shall take place until all required permits have been obtained.
- The limits of disturbance shall be clearly delineated in the field prior to grading of the site to ensure compliance with approved plans. All Forest Retention areas will be delineated with Blaze Orange Fence as well as any SWM infiltration practice prior to any clearing. Work beyond the limits of disturbance and in any area inside the Forest Retention and SWM infiltration area is considered to be a violation of this plan.
- All sediment control practices must be installed prior to any construction activity. Upon completion of the installation of perimeter sediment control practices the site must be inspected by the Department of Public Works (DPW). No additional construction activity will be authorized without the approval from DPW.
- All points of ingress and egress shall be protected to prevent tracking of mud into public ways. During construction, every means will be taken to control soil erosion and siltation. If necessary a wash rack may need to be established.
- Earth dikes, sediment traps, etc. will be located as shown on these drawings. Field changes and minor adjustments are permissible as long as the installation functions and conforms to specifications. The site inspector prior to installation must approve all such changes. Major changes to the approved plan will require re-approval by the Harford Soil Conservation District.
- Following initial soil disturbance or re-disturbance permanent or temporary stabilization shall be completed within:
 - Three calendar days on slopes greater than 3:1, all waterways and to the surface of all perimeter controls.
 - Seven calendar days as to all other disturbed or graded areas of the project site.
- Dust control must be managed as part of all Sediment Control plans. Failure to do so is a violation of this plan.
- Sediment basins must be built to design specifications shown on the plan. If the basin is to be used as a future SWM facility, the basin will be built in accordance with the latest MD-378 standards and specifications. Specified materials must be used. No changes or modifications will be made without written authorization of the Harford Soil Conservation District.
- Temporary fencing shall be placed around all sediment basins, traps, and ponds during construction and site grading.
- At the end of each working day all sediment control practices will be inspected and left operational. A weekly log will be kept in accordance with NOI/NPDES regulations. A copy of the approved sediment control plans shall be available at the site at all times.
- Ensure positives drainage to all road inlets during all phases of road construction to ensure positive flow to traps and or basins.
- Cut and/or fill shall be done in conformance with 2011 Erosion and Sediment Control Standards and Specifications for land grading.
- Surface flows over cut and fill slopes shall be controlled by either redirecting flows from traversing the slopes or by installing mechanical devices to safely convey water down slopes without causing erosion.
- Off-site waste or borrow areas shall have an approved erosion and sediment control plan prior to the import or export of material to/from the project site.
- All material originating from the development of the property and deposited on the public right-of-way shall be immediately removed.
- Storm drain inlets and outlets shall be protected per 2011 Erosion and Sediment Control standards and specifications.
- Topsoil, liming, fertilizing, seeding, mulching, sod, etc. are all essential parts of the sediment control plan and must be completed along with all other practices.
- Traps to be removed shall be devotered as per the 2011 Erosion and Sediment Control standards and specifications.
- Prior removal of traps or conversion of sediment basins to SWM facilities, the storm drains will be flushed.
- Sediment control practices will be maintained until all disturbed areas for which the practices were installed have been stabilized. Sediment control practices may be removed only with the authorization of the DPW inspector. All disturbed areas resulting from the removal of sediment control devices shall be stabilized immediately. Removal prior to inspectors's approval constitutes a violation.



TIMBER MAT ENTRANCE DETAIL NOTES:

NOTE:

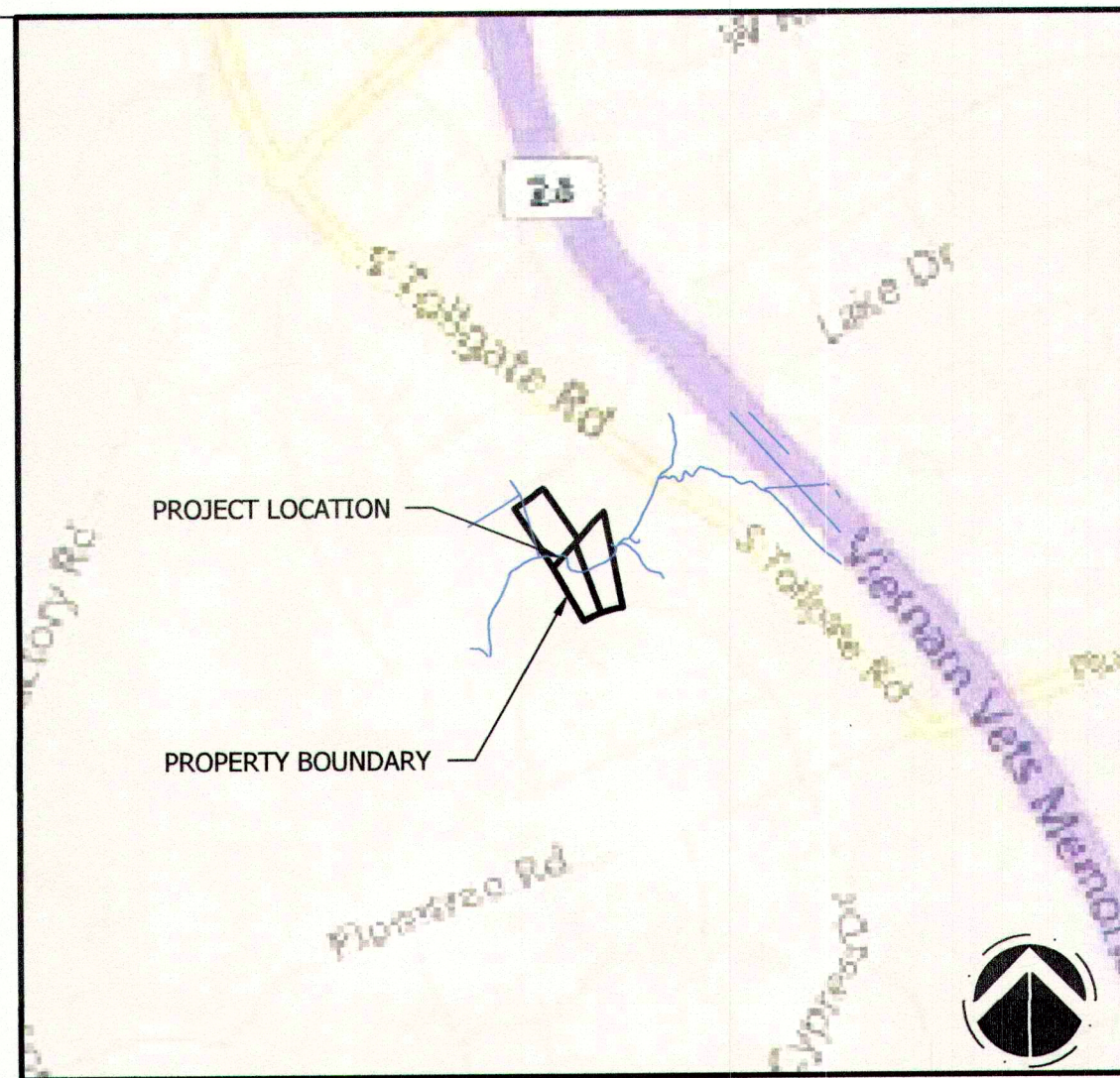
- MATS SHALL BE PLACED END TO END TO FORM A CONTINUOUS SPAN FOR THE ENTIRE LENGTH OF THE AREA TO BE PROTECTED.
- MATS SHALL BE INSPECTED FREQUENTLY AND MAINTAINED OR REPLACED AS NECESSARY TO ENSURE THEIR PROPER FUNCTION.
- INDIVIDUAL MATS SHALL BE SECURELY CONSTRUCTED WITH INDIVIDUAL COMPONENT LAYERS BOLTED, CABLED OR OTHERWISE SECURELY FASTENED.
- TIMBER MATS SHALL EITHER BE NEW OR POWER WASHED PRIOR TO ARRIVING ON SITE IF PREVIOUSLY USED.

COORDINATE NOTE

PLAN IS IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

UTILITY NOTIFICATION

"Ecotone, Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities. It is suggested that Miss Utility be contacted at: 1-800-257-7777."



VICINITY MAP

SCALE: 1" = 1000'

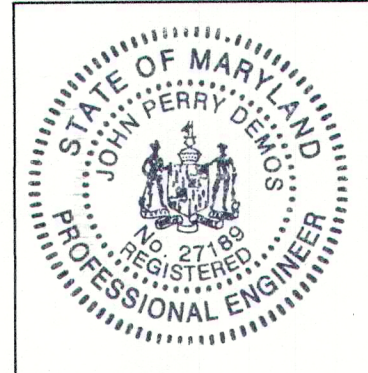
Site Analysis:

Total Site Area	13,851 Sq. Ft./ 0.32 Ac.
Total disturbed Area	13,851 Sq. Ft./ 0.32 Ac.
Area to be paved	0 Sq. Ft./ 0 Ac.
Area to be stabilized	13,851 Sq. Ft./ 0.32 Ac.
Cut	13 Cu. Yd.
Fill	13 Cu. Yd.
Topsoil	NA

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27189, expiration date: 3/26/22.

Signature: *[Signature]* Date: 2/25/21



LIMIT OF DISTURBANCE: 13,851 SF / 0.32 AC.

PLUMTREE RUN STREAM REPAIR

EROSION & SEDIMENT CONTROL STANDARD PLAN

1923 CYPRESS DRIVE, HARFORD COUNTY



129 Industry Lane · Forest Hill, Maryland 21050
(410) 420 2600 · www.ecotoneinc.com

REVISIONS			
No.	DATE	DESCRIPTION	REV BY

CHECKED BY: CEH

DESIGNED: CRH

DRAWN: CRH

PROJECT No.: 20-15-003

DATE: 2/25/2021

SHEET:

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 7a Seed Mixture (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths (inches)		
2	Annual Rye (<i>Lolium perenne</i> spp. <i>multiflorem</i>)	40	02/15 - 04/30, 08/15 - 11/30	0.5	436 lb/ac (10 lb/1000 sf)	2 tons/ac 90 lb/1000 sf
	Foxtail Millet (<i>Setaria italica</i>)	30	05/1 - 08/14	0.5	436 lb/ac (10 lb/1000 sf)	2 tons/ac 90 lb/1000 sf

Permanent Seeding Summary Mix

Hardiness Zone (from Figure B.3): 7a Seed Mixture (from Table B.3): 8, 4					Fertilizer Rate 10-20-20			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P2O5	K2O	
4	Deertongue (Dichanthelium clandestinum)	15	02/15 - 04/30, 05/01 - 05/31	.25 -.5 in	45 lb/ac 1 lb/1000 sf)	90 lb/ac 2 lb/1000 sf	90 lb/ac 2 lb/1000 sf	2 tons per acre
	Creeping Red Fescue (Festuca rubra var. rubra)	20	02/15 - 04/30, 05/01 - 05/31	.25 -.5 in	45 lb/ac 1 lb/1000 sf)	90 lb/ac 2 lb/1000 sf	90 lb/ac 2 lb/1000 sf	2 tons per acre
	Virginia Wild Rye (Elymus virginicus)	5	02/15 - 04/30, 05/01 - 05/31	.25 -.5 in	45 lb/ac 1 lb/1000 sf)	90 lb/ac 2 lb/1000 sf	90 lb/ac 2 lb/1000 sf	2 tons per acre (90 lb/1000 SF)
	Foxtail Millet (Setaria italica)	5	02/15 - 04/30, 05/01 - 05/31	0.5 in	45 lb/ac 1 lb/1000 sf)	90 lb/ac 2 lb/1000 sf	90 lb/ac 2 lb/1000 sf	2 tons per acre

MGWC 1.2: PUMP-AROUND PRACTICE

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to [Detail 1.3](#)):


- Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should state out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
- Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
- Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.
- Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment within the work area where no work is proposed should be avoided.
If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See [Section 1, Stream Crossings, Maryland Guidelines to Waterway Construction](#)).
- All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
- A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 13 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
--	--------------------------------------	---

PLUMTREE RUN
STREAM REPAIR

EROSION & SEDIMENT CONTROL
STANDARD PLAN

1923 CYPRESS DRIVE, HARFORD COUNTY



ecotone

ecological restoration

129 Industry Lane • Forest Hill, Maryland 21050
(410) 420 2800 • www.ecotoneinc.com

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: CEH

DESIGNED: CRH

DRAWN: CRH

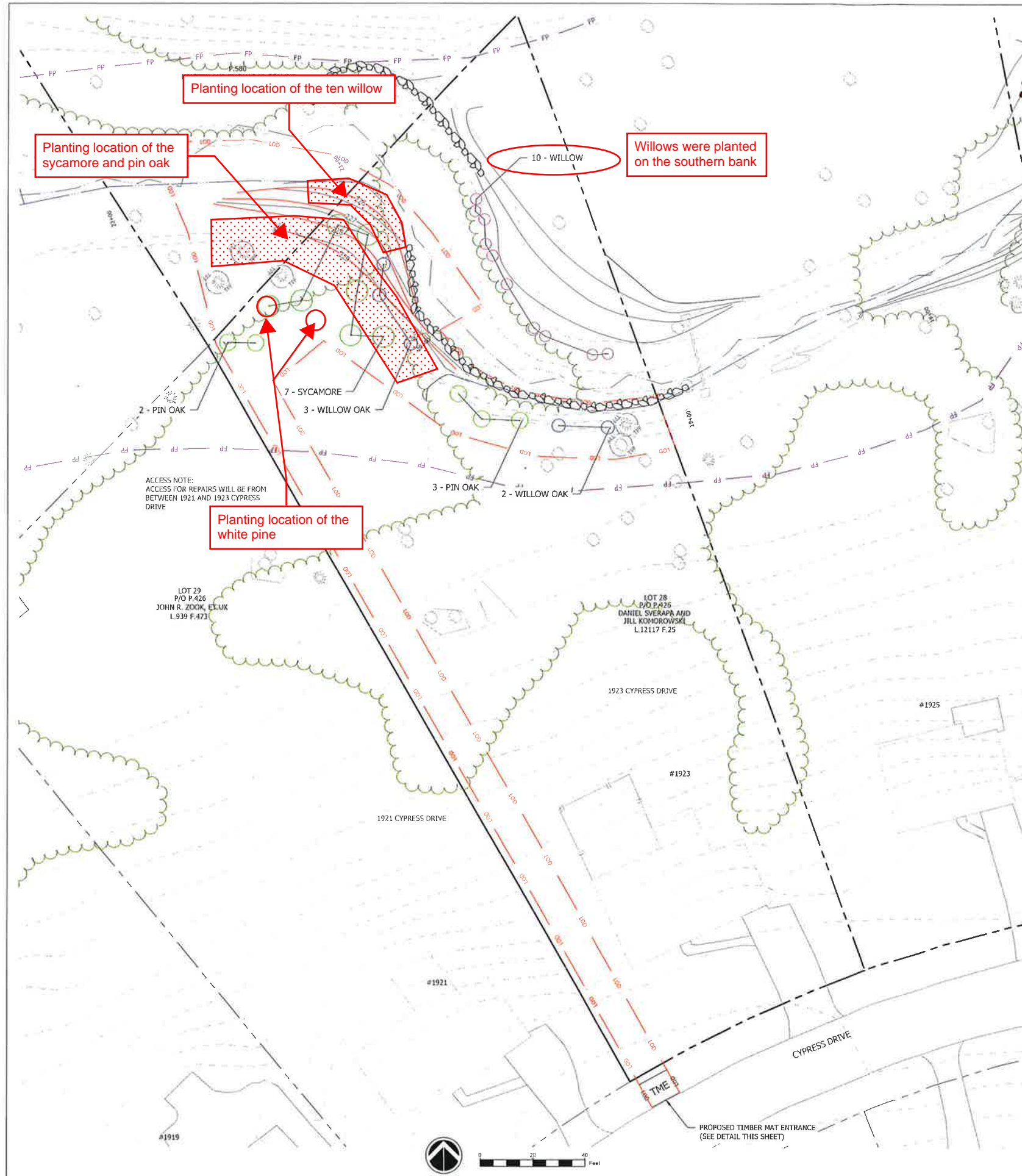
PROJECT No.: 20-15-003

DATE: 2/25/2021

SHEET:

2 of 2

2 of 2



dobson, michele

From: pistel, tom <tapistel@harfordcountymd.gov>
Sent: Friday, October 28, 2022 3:04 PM
To: Curt Hall; Mark Vollmer; Dan Sverapa; dobson, michele
Subject: 15-276S Plumtree Run Repairs - Maintenance Inspection

Good afternoon folks – The maintenance inspection was held today with Curt Hall, Mark Vollmer, Dan Sverapa (homeowner), Michele Dobson, and Tom Pistel in attendance. There were no issues. Tom Pistel



MEMORANDUM

700 East Pratt Street, Suite 500
Baltimore, MD 21202
Phone 410.728.2900
Fax 410.728.2834
www.rkk.com

Date: May 10, 2022
Prepared for: Harford County Watershed Protection and Restoration Office
Prepared by: RK&K
Title: Harford County Stream Restoration Vegetation Monitoring Protocol

INTRODUCTION

Harford County Department of Public Works (DPW) maintains a portfolio of urban stream restoration projects to meet National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit requirements for impervious surface treatment. The stream restoration projects are classified by Maryland Department of the Environment (MDE) as an Alternative Best Management Practice (Alternative BMP), which are subject to regular monitoring and maintenance requirements.

Stream restoration BMPs must be inspected once every five years and properly maintained in order for MS4 jurisdictions to claim credit per MDE's *Accounting for Stormwater Wasteload Allocation and Impervious Acres Treated* (November 2021).

U.S. Army Corps of Engineers (USACE) and MDE require stream restoration projects to have either three years or five years of post-construction monitoring as part of their permit authorization. Following completion of the USACE/MDE permit required monitoring period, this Stream Restoration Vegetation Monitoring Protocol shall be completed every five years to satisfy the MS4 permit requirements. This protocol has been developed based on the guidance provided in the Chesapeake Bay Program's (CBP) *Recommended Methods to Verify Stream Restoration Practices Built for Pollution Crediting in the Chesapeake Bay Watershed* (2019).

PURPOSE

The vegetation associated with restored stream channels and floodplains are a vital component of the pollutant and sediment reduction functions of the stream system, providing bank and soil stabilization, nutrient uptake, and stormwater attenuation. The results of this stream restoration vegetation monitoring will be used in conjunction with the stream structural inspections, which center on geomorphology and overall stream stability, to verify the stream restoration projects' functionality and capacity to reduce pollutant and sediment loading.

STREAM RESTORATION VEGETATION MONITORING PROTOCOL

Desktop Review and Field Preparation

The inspection team shall collect and review the relevant project information provided by DPW, including landscaping plans, as-builts, inspection reports and geographic information system (GIS)

data prior to the field inspection process. Once the data has been collected and reviewed, GIS geodatabases (GDB) and web-based field maps shall be developed for data collection. Data dictionaries for the required GDBs can be found in **Appendix A**. The Desktop Review and Field Preparation tasks are outlined below.

1. Review the plans, inspection reports and GIS data provided by DPW.
2. Develop a Data Collection GDB and a web-based GIS map for the site inspection efforts. All GIS data collection shall be completed in the field using a GPS receiver capable of recording sub-meter accuracy.
 - a. The Data Collection GDB shall include the following feature classes:
 - i. Project LOD (polygon)
 - ii. Site Boundary (polygon)
 - iii. Stream Baseline (polyline)
 - iv. Vegetation Monitoring Station (point)
 - v. Photo Points (point)
 - vi. Observation Points (point)
 - vii. Existing Problem Area (polygon)
 - viii. Existing Problem Area (polyline)
 - ix. Problem Area (polygon)
 - x. Problem Area (polyline)
 - b. Web-based GIS map shall include:
 - i. Data Collection GDB
 - ii. MD-iMAP 6-Inch Imagery

Need to discuss the intentions year-to-year and data collection on the app. A new DB for each inspection year seems cumbersome and would make it harder to compare inspection data. Wondering if there is a way to create a "new inspection" within the app so old data is available w/in the same DB. Are there multiple sites in one DB or only one? Confused in how the feature classes will be laid out for different sites and different inspections.

Let's discuss. We can add an inspection year Storing all inspection data in a linked table may be the way to go

Details on the feature classes and how they are created can be found below. A data dictionary is also included with this protocol.

1. Project LOD (polygon)
 - a. The Project LOD will be developed from georeferenced construction plans the first inspection cycle and will be carried over into subsequent inspection cycle geodatabases.
2. Site Boundary (polygon)
 - a. The Site Boundary feature class will be developed the first inspection cycle based on the Project LOD and will store the site-wide inspection data. In subsequent inspection cycles, the Site Boundary geometry and fields shall remain the same, with the inspection data fields empty to allow for new data entry.
 - b. The Site Boundary will focus on vegetated areas along the stream restoration project that are pertinent to the stream's functionality and will serve as the boundary of the primary vegetation monitoring. Areas within the Project LOD that are not vegetated or pertinent to the stream's functionality, including access routes, impervious areas, etc. will be removed.
3. Stream Baseline (polyline)
 - a. The Stream Baseline will be developed from georeferenced construction plans the first inspection cycle and will be carried over into subsequent inspection cycle geodatabases.

If not previous provided by the county

We will update accordingly

4. Vegetation Monitoring Station (point)

- a. The Vegetation Monitoring Stations shall cover at least 10% of the project area (eg: a six-acre site would require six 1/10th-acre Vegetation Monitoring Stations) and a minimum of five Vegetation Monitoring Stations are required for each site. The Vegetation Monitoring Stations plot sizes will vary (either 1/10th-acre, 1/20th-acre or 1/100th-acre plots) depending on the overall site size.
- b. Half of the Vegetation Monitoring Stations will be permanent stations that are sampled every inspection cycle, while the other half of the Vegetation Monitoring Stations will be randomly located each inspection cycle. The number of permanent stations required should be determined by dividing the total number of stations needed in half and rounding up (i.e., if a total of five Vegetation Monitoring Stations are required, three of those will be permanent Stations). The permanent Vegetation Monitoring Stations shall be copied from the previous inspection cycles with the necessary data collection fields cleared out. The randomly located Vegetation Monitoring Stations shall be created using the "Create Random Point" tool in ArcGIS and merged into the Vegetation Monitoring Stations feature class that contains the permanent Stations.

5. Photo Points (points)

- a. The Photo Points feature class will be developed during the first inspection cycle and carried over into subsequent inspection cycles. All previous features stored in this class should be erased so that the feature class is empty at the beginning of the inspection cycle.
- b. The Photo Points feature class will be used to capture photos that can be included in the reporting and mapping.

We can leave the point locations for permanent photo stations

6. Observation Points (points)

- a. The Observation Points feature class will be developed during the first inspection cycle and carried over into subsequent inspection cycles. All previous features stored in this class should be erased so that the feature class is empty at the beginning of the inspection cycle.
- b. The Observation Points feature class will be used to capture general observations and points of interest, but since this feature class does not capture photo direction or type, the associated photos shall not be used in reporting.

7. Existing Problem Area (polyline and polygon)

- a. The Existing Problem Area feature classes shall be populated the first inspection cycle based on the structural stream inspections. During subsequent inspection cycles, the Existing Problem Area feature classes shall be copied from the previous inspection cycle's Problem Areas that have not been resolved. If the previous Problem Areas were resolved, they do not need to be added to the Existing Problem Area feature class.

8. Problem Area (polyline and polygon)

- a. The Problem Area feature classes will be developed during the first inspection cycle and carried over into subsequent inspection cycles. All previous features stored in this

No - CBP doc references less than 80% ground or canopy cover in restoration zone as a key visual indicator. CBP does not specify coverage type, but likely relative coverage since they note that 80% coverage is equivalent to 20% bare earth

The problem areas the first year would be carried over from the original stream structural inspection report

class should be erased so that the feature class is empty at the beginning of the inspection cycle.

Field Monitoring

The Stream Restoration Vegetation Monitoring approach centers around a two-stage, out and back method that combines a rapid assessment of overall site conditions with detailed plot-sampling at the Vegetation Monitoring Stations and site analysis at problematic areas. During the “out” leg, the inspection team will walk the length of the stream restoration project, document overall site conditions, and sketch in quick outlines of problematic areas, where further inspection is required, using the Problem Area feature class in GIS. During the “back” leg, the inspection team shall walk back up the stream restoration project, perform plot sampling at all Vegetation Monitoring Stations and record observations at all Existing Problem Areas and Problem Areas. While projects with narrow LODs may be covered with one out leg and one back leg, most stream restoration projects should have separate out and back legs on each stream bank to ensure complete inspection coverage.

The CBP’s Recommended Methods indicates that minor problems should be “noted for future re-inspection and maintenance, (but) they are not the primary focus of the verification assessment.” When assessing the site’s overall functionality, “the guiding rule is that inspectors are looking for significant departures from its original design that may be compromising pollutant reduction function.”

The steps in the field monitoring protocol include the following:

1. Complete the “out” leg, walking the length of the project area, documenting overall site conditions and Problem Areas.
 - a. Take general notes on the condition of the site’s vegetation.
 - b. Sketch in quick outlines of problematic areas using the Problem Area feature class in GIS. **Does CBP define if aerial (absolute) or relative coverage is used for invasive %?**
~~Problem areas include areas where there is <80% vegetative coverage, stands of invasive species (>20% coverage of an area), bare patches of earth, eroded areas, areas where planting efforts have largely failed and other areas where the vegetation is problematic.~~
2. Complete the “back” leg, walking back the length of the project area and stopping at all Vegetation Monitoring Stations, Existing Problem Areas and new Problem Areas.
 - a. Complete vegetation sampling plots at all Vegetation Monitoring Stations.
 - i. The vegetation sampling shall document the dominant species and absolute coverage within each vegetative strata.
 1. Absolute coverage can exceed 100%.
 2. The strata shall include the following:
 - a. Trees (woody vegetation over 20’ in height, excluding woody vines)
 - b. Shrubs (woody vegetation 3-20’ in height, excluding woody vines)
 - c. Herbaceous (all non-woody plants)
 - d. Woody Vines (all woody vines, regardless of height)

No - CBP doc references less than 80% ground or canopy cover in restoration zone as a key visual indicator. CBP does not specify coverage type, but likely relative coverage since they note that 80% coverage is equivalent to 20% bare earth

Thank you for adding, so many people mix up coverage types!

3. A dominant species can exist in two separate strata.
 - a. i.e.: Red maple can be dominant in both tree and shrub strata, if the existing vegetation fits the size criteria.
 - ii. Take two pictures of the sampling plot and record the photo number in the Vegetation Monitoring Station feature in GIS.
- b. If the Existing Problem Areas from the previous inspection cycle are unresolved, create a new feature in the Problem Areas feature class and complete vegetation monitoring as indicated below for Problem Areas.
- c. At Problem Areas, walk the boundary of the problem area and revise the shape of the previous sketch as needed.
 - i. Populate the Problem Area fields based on field observations
 - ii. Take at least two photos of the problem area and record the photo numbers in the corresponding feature in GIS.
 - iii. Document recommended remediation efforts to address the problem in the corresponding Problem Areas feature in GIS.

Reporting

The results of the Stream Restoration Vegetation Monitoring shall be documented in a report that will be used in conjunction with the structural stream inspection report to satisfy the MS4 permit reporting requirements. The report, as well as a post-processed Data Collection GDB, shall be provided to DPW at the end of the monitoring cycle. The reporting and deliverables shall follow the workflow outlined below:

1. Download and post process GIS data
2. Draft a report that includes the following sections:
 - a. Executive Summary
 - i. Outline the general vegetation monitoring efforts and provide a brief overview of all the sites monitored.
 - b. Introduction
 - c. Methods
 - i. Include the monitoring protocol
 - d. Results
 - i. Provide a brief overview of the monitoring results in the form of a site summary table.
 - e. Appendix
 - i. Include monitoring results and recommendations for each site, including the following:
 1. Site mapping, including Site Boundary, Project LOD, Stream Baseline, Vegetation Monitoring Stations (permanent or random), Photo Points (including arrows indicating direction of photo), and Problem Areas
 2. Site photos.

3. Site monitoring results, including an assessment of problem areas and overall invasive species coverage based on the vegetation sampling.
4. Site recommendations, including actions needed to remediate Problem Areas (e.g.: reseeding, replanting, invasive species control, bank stabilization, etc.)
 - a. Be specific in the recommendations and include species and application rates for revegetation, means of invasive species control, etc.
5. Include recommendations for reinspection of Problem Areas following remediation efforts
6. Include an overall evaluation of the site vegetation, considering the following based on CBP's guidance:
 - a. Look for significant departures from the site's original design that may be compromising pollutant reduction function
 - b. Since most stream restoration sites are heavily cleared and need time to find their equilibrium, consider whether the site is trending towards stabilization or degradation.

This seems a bit atypical for a monitoring report. We should def. specify that recommendations should include only those specific to vegetation (Aka only non-structural bank stabilization). No separate task for adaptive management efforts?

Agree that the recommendations will only be veg specific - we can clarify. We discussed on 6/27 that the recommendations can be included in the monitoring report rather than a separate adaptive management report. The implementation of the recommended remediation will depend on the site

3. Provide the report and Data Collection GDB to DPW for review and comment at the end of the monitoring cycle, address all comments from DPW, and resubmit as necessary.

landscape plan? Dont want confusion with other monitoring efforts/design departures

We will update accordingly